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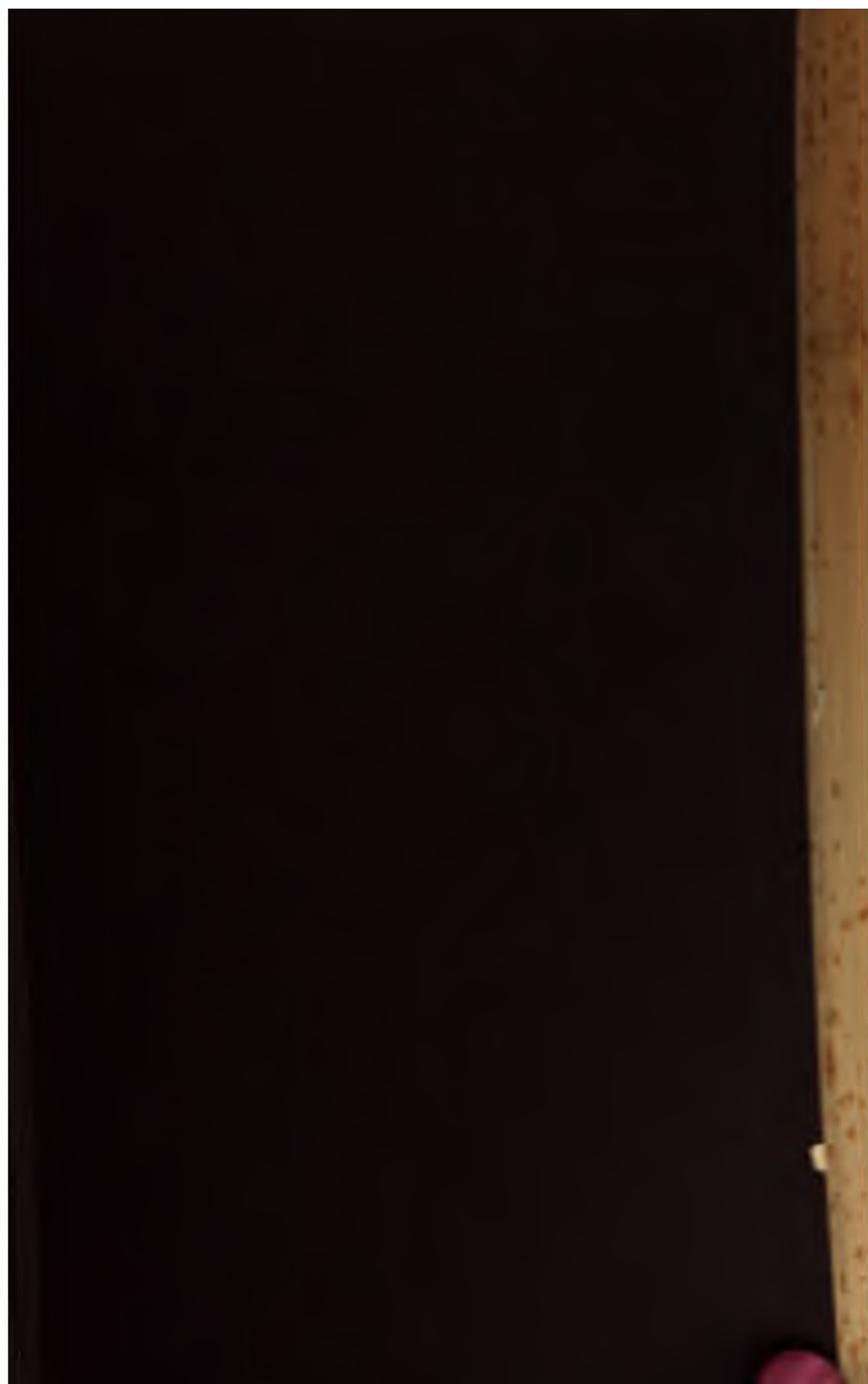
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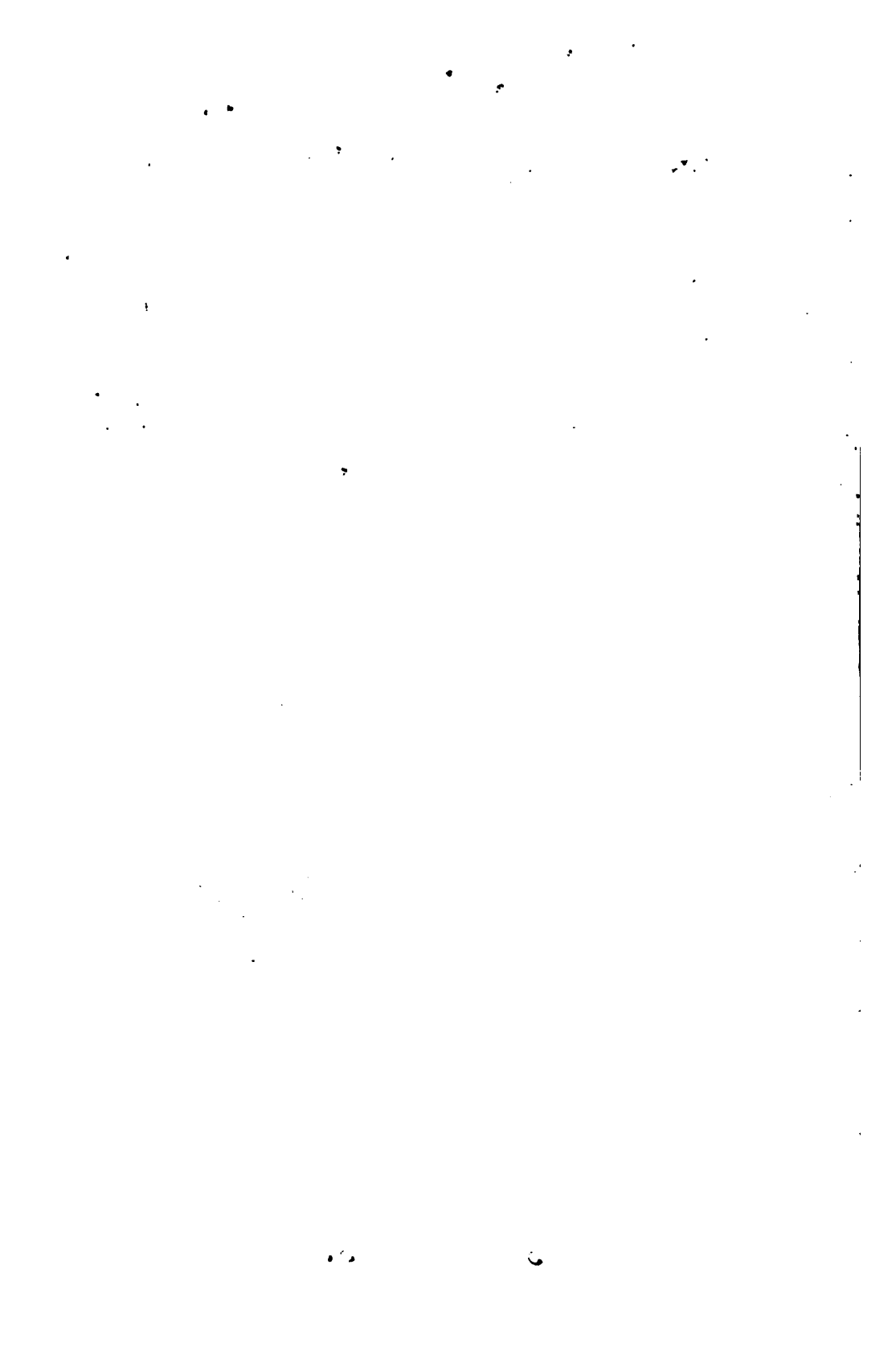


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THE DUTIES OF THE GENERAL STAFF.



THE DUTIES
OF
THE GENERAL STAFF.

BY
MAJOR-GEN. BRONSART VON SCHELLENDORF,

CHIEF OF THE GENERAL STAFF OF THE GUARD CORPS.

TRANSLATED FROM THE GERMAN FOR THE INTELLIGENCE
BRANCH OF THE QUARTERMASTER-GENERAL'S DEPART-
MENT, HORSE GUARDS, WAR OFFICE.

BY
W. A. H. HARE

CAPTAIN ROYAL ENGINEERS.

VOL. II.



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PREFACE.

I NOW publish the second and last volume of my treatise on the duties of the General Staff. This second volume deals principally, as was indicated in the preface to the first, with the employment of the General Staff in time of war. Chapters II. and VII. treat of the formation of the army on a war footing, and of certain branches and departments closely connected with it. Though in these chapters much has necessarily been omitted which the regulations of the service require to be kept secret, I have, on the other hand, made every endeavour to give a clear idea of the subject, so far as it has been permitted to be made public.

It is my intention to combine in this work the examination of what is prescribed by definite regulations and of what the experience of recent campaigns has proved to be expedient, with the consideration of more abstract questions, taking care in doing so not to attribute to the latter any undue value on account of their novelty. If the work thereby loses, so far as homogeneity of structure is concerned, it will certainly

gain, on the other hand, in practical utility, for though I have treated some parts of my subject with perfect freedom, I have, nevertheless, always recognised that there are certain limits beyond which theoretical discussion appears to be of less profit than an accurate description of existing institutions.

While I have striven to use to the best advantage all that I have learned from a study of the art of war, and from my own experience on active service, I have throughout refrained from adducing illustrations drawn from military history. It is a well-known fact, that almost any assertion or recommendation can be supported by superficial arguments founded on military history. But in order to satisfactorily demonstrate the justice of an opinion on the ground of experience, it is requisite not only to adduce a great number of examples of a similar nature, but to prove that in all of them both the cause and effect are approximately the same. To have done this would have necessitated an undesirable increase in the dimensions of my work, and would have detracted from its clearness as a whole.

Similar reasons have induced me to avoid illustrating the work with the solution of given examples of a typical character. These examples are in fact in themselves of less value than those drawn from military history. They do more harm than good to those who have not grasped the spirit of the matter, and do little to encourage untrammelled mental activity.

To stimulate the latter, to give it a practical guide, was the object of my treatise, for the second part of which as for the first, I solicit the favourable opinion of my German comrades.

BERLIN, 22nd March, 1876.

BRONSART VON SCHEELLENDORF,
Major-General and Chief of the General Staff of the Guard Corps.

THE DUTIES OF THE GENERAL STAFF.

CHAPTER I.

ON THE COMPOSITION OF ARMIES, "ORDRE DE BATAILLE," AND DISTRIBUTION OF TROOPS.

THE composition and distribution of an army is given in its "*Ordre de Bataille*." This was originally based on the battle array of an army; now it is mainly intended to show the general distribution of the troops, and to regulate the arrangements for command and administration. It indicates the normal fighting formations only.

The necessity of dividing an army into smaller fighting bodies, and of further subdividing these again, became manifest as soon as regular armies began to be organised. However closely combatants may be concentrated, only a limited number can be directly commanded by one leader; any increase in this number necessitates the separation of the body at least into subdivisions capable of being directly led by one man, and for certain purposes still further subdivision may be necessary. We thus arrive at what is known in modern military language as a "*Tactical unit*." This is a term, the signification of which has necessarily varied with the changes which the art of war has undergone. The order in which a body of men should be drawn up for battle, in order, that is to say, that they may make the best use of their arms, and the space which they must occupy both in breadth and depth for this purpose, must be

decisive considerations in determining the maximum size which can be assigned to the tactical unit.

Now it is the unit of *maximum* size that we must be constantly striving to attain, for only so can we avoid that unnecessary subdivision which uselessly increases the number of subordinate leaders, and prolongs the chain of responsibility through which orders have to be transmitted.

It would be very interesting to follow the historical development of these principles as shown from time to time in their effect on the composition and formation of armies. But this would lead us beyond the scope of the present work. We must limit ourselves to the present time, and seek to deduce from an examination of existing army organisation as founded on modern warfare, the considerations which should weigh in regulating the composition and formation of an army at the present day.

These considerations are undoubtedly numerous, but the primary ones must be held to be the employment of troops in battle, as well as the best mode of moving them on the line of march, and of bringing them on the battle-field. In immediate connection with this, is the question of certainty and precision in the transmission of orders. Questions of supply, clothing, arms and equipment, hygiene, etc., all, in fact that, we are accustomed to class under the general head of "Administration," are matters of only secondary importance.

It is a necessary consequence of the nature of modern warfare that the particular order and composition in which the various portions of an army are drawn up for battle, must be always varying. In place of the rigid precision of the eighteenth century and the formations in vogue in the Prussian Army at the time of the catastrophe of 1806, commanders have now the liberty of disposing their troops as may seem most advisable.

A consequence of this liberty is the necessity of having various modes of distributing troops according to the object which they are intended to fulfil.

We must not, however, look on these varied and frequently changing modes of distribution as irreconcilable with the *Ordre de Bataille*, which is a term intended to represent the normal

organic constitution of a body of troops for employment in war. They are only its further development, and it is evidently undesirable that the distribution of the troops should deviate too widely from the *Ordre de Bataille*, or should itself be altered too often, and without urgent reason.

If this be done, not only is the accustomed chain of authority broken, and energy and certainty of command thereby endangered, but also a change is entailed in the administrative arrangements on which depends the maintenance of the troops in a fit state for battle.

A certain degree of permanence in the distribution of troops, if in any way consistent with the objects aimed at, is therefore preferable to frequent change, even at the cost of ideal perfection.

We can see also, how important it is that the various modes of distributing the troops should be effected without seriously disturbing the normal arrangements for command and supply of the *Ordre de Bataille*, and *vice versa*, that the *Ordre de Bataille* should itself be framed in harmony with the requirements of modern warfare, and should give a distribution of troops capable of employment in the majority of cases likely to occur, or should at least facilitate the formation of such a distribution. If we further take into account considerations of the movement and subsistence of troops, the accurate transmission of orders, etc., etc., we see clearly how important to every army in the field must be the judicious selection of its *Ordre de Bataille*, and it is in view of war that armies should be organised beforehand in time of peace.

From this point of view, the best distribution of the troops in time of peace would be one which would permit of their passing at once from a peace to a war footing. But in carrying out this idea, we find that many modifications are necessitated by the requirements of peace. Thus, for example, the desire to facilitate as much as possible the special training of the various arms of the service, is alone a reason against their being kept in composite bodies (Army Corps, Divisions, etc.), as is necessary in time of war. (See Vol. I, pp. 116-119.)

The question how far these and other considerations justify a deviation in time of peace from the *Ordre de Bataille* adopted

for war will henceforward, even more than formerly, be a subject for the most serious consideration, on account of the increasing rapidity with which troops can now be taken from their garrisons, formed into Divisions and Army Corps, and at once sent to the very battle-field. No measure should therefore be neglected, which would have the effect of facilitating their transfer from a peace to a war footing.

We have now to consider the principles which should regulate the formation and composition of a *great* army. The formation of small armies can be no criterion, for in undertakings of importance they are usually united to larger armies, and thus it is only desirable that their *Ordre de Bataille* should facilitate this union.

The *combatant forces* of a great nation are in time of war formed into several subdivisions which we are accustomed to style "*Armies*." The strength and composition of these armies cannot be determined beforehand, for the particular circumstances under which the war is engaged in, may vary extremely, and may be influenced by the position of allied armies, by the attitude of States which for the time being, remain neutral, etc., as well as by the enemy's forces.

The first question we have to consider then is into how many units an *Army* should be divided.

It may be laid down as a general principle that the *primary* division should include *as many* units as practicable, in order to avoid the necessity for further subdivision into subordinate fractions. The maximum to be fixed depends on the consideration that a chief can direct efficiently only a certain number of subordinates. What this number is, can hardly be determined by theory; experience, however, gives us a guide, and the conclusion has thus been arrived at that, if an army be divided into more than eight different units, its leader will find difficulty in maintaining a strict and homogeneous command. The numerical size and the nature of the various units must also be taken into account, for with their increase in numbers, and with the extent of ground which their composition or their employment compels them to occupy, the consideration of space becomes important.

Let us now look on the army as a collection of tactical units, that is, as consisting of a certain number of battalions, squadrons, and batteries (taking into account only the three principal arms of the service, viz., infantry, cavalry, and artillery). In proceeding to arrange its division into units, the first point to be weighed, is whether we should commence with the infantry, and divide it into equal parts, assigning to each its due proportion of cavalry and artillery, or whether we should form separate units, consisting either entirely or partially of the two last-named arms.

No practical soldier who has studied the new rôle in which the German Cavalry made its appearance in the war of 1870-71, as an arm capable of reconnoitring far in advance, and of screening from the enemy the movements of its own army, will require any scientific demonstration that the primary distribution of an army must comprise independent bodies consisting exclusively of cavalry and horse artillery. The only question is, of what strength these bodies should be, and what formation is best suited for them.

In the Campaign of 1866, the Prussian Cavalry was formed into a *Cavalry Corps* of two Divisions, which was generally placed under one of the Generals commanding Armies, and only occasionally received its orders direct from the Commander-in-chief. As the Divisions of such a Cavalry Corps must always be placed, not one in rear of the other, but side by side, both on reconnoitring service, and on the field of battle (if both Divisions—that is to say, the Corps—are to produce their full effect), it follows that the General commanding a Cavalry Corps is an unnecessary intermediate leader whose functions might be directly performed by the General commanding the Army. On this principle, no *Cavalry Corps* was organised in the war of 1870-71, but a certain number of *Cavalry Divisions* were formed and placed under the orders of the Generals commanding Armies—an arrangement which completely satisfied all requirements.

If we may take it for granted that this arrangement is likely to hold good for the future, we may dismiss the consideration of a Cavalry Corps, and, while fully recognising that complete

liberty of action must be exercised according to the various circumstances which may occur, proceed at once to direct our attention to the proper normal formation of a Cavalry Division. In doing so, we must keep in view its employment on the field of battle, as well as on reconnoitring service, and especially not forget that the points of chief importance for the first-named duty are its total effective strength and formation, while its efficiency for reconnoitring purposes depends more on its composition, and on the assignment to it of artillery, and occasionally a small body of infantry. It will simplify our consideration of the composition of a Cavalry Division, if we here state our views as to the necessity or inadvisability of permanently attaching infantry to it. We have no hesitation in characterising the *permanent* assignment of a *small* force of infantry to a *great* body of cavalry as an unnatural combination, and one utterly opposed to the very nature of the latter arm, for infantry lacks the element of rapidity which gives to cavalry its main importance. It will, we hope, meet with general approbation if we pass over without examination, the theory proposing that means be improvised for permanently mounting infantry on waggons in time of war, and thus conferring on it the element of rapidity. In the first place the plan of maintaining such a force ready equipped in time of peace (and only by doing this, could there be any security that it would not be left in case of war, too far in rear of the cavalry), can hardly find advocates, for the advantages to be gained bear no proportion to the cost which would be entailed. A small force of infantry may indeed in certain exceptional cases render very useful services to cavalry, but if permanently attached, it is certain to act as a clog and hamper its activity. If the cavalry will not suffer this, it must separate itself from the infantry, and leave the latter behind to its own resources. In the interests of the infantry, it is to be hoped that such a resolution would be come to only when the army were about to advance, or already in motion.

When the defenders of the plan of attaching small forces of infantry to great bodies of cavalry, talk of such an arrangement being analogous to that followed in attaching a regiment of

cavalry to an Infantry Division, they forget that the latter body has tasks to fulfil, which it is physically impossible for infantry to accomplish—as for example, the rapid reconnaissance of a large extent of country, the transmission of the information gained on such reconnaissances, the maintenance of a distant chain of outposts, the keeping up of communication with other bodies of troops, with detachments, and so forth. For such duties, a sufficient number of *mounted men* is absolutely indispensable. On the other hand, there is no duty which a Cavalry Division is called on to perform, which could not be as well accomplished by dismounted troopers, if provided with a good fire-arm and properly trained, as by a *small* force of infantry. The old idea that the security of cavalry when bivouacking at night must be assured by infantry, is now a thing of the past. With all this we do not mean that infantry should ever make themselves comfortable at the expense of cavalry, or should hesitate to act in all cases when the nature of the arm permits. Thus, it is, in certain circumstances, highly proper that a force of infantry should be placed under the orders of the Commander of a Cavalry Division; for instance, to occupy a defile through which the cavalry is going to advance. In this case no part of the Cavalry Division need be left behind, and in case a retreat should be necessary, it is sure of receiving the requisite support. Also, in the exceptional case of the necessity arising to occupy without delay a point far in advance, or on a flank, it may be advisable to attach a force of infantry mounted on waggons, to cavalry. But assignments of this sort should only be made for a specific purpose, and for a limited time; they do not therefore enter into the *Ordre de Bataille*, but only constitute a temporary variation in the distribution of the troops.

In order then, that Cavalry Divisions may be permanently independent of infantry, they must have a definite and suitable composition.

In considering this composition in view of its adaptation to the existing German Army, the first point to be looked to is the difference in the equipment of light and heavy cavalry. Cuirassiers carry, as we know, only a short pistol, effective at close ranges, and which is shortly to be replaced by a revolver,

also of no great range. In lancer regiments, 32 men per squadron are armed with the carbine, which is carried by all hussars and dragoons. It is clear, therefore, that light cavalry (hussars and dragoons) must be sufficiently represented in every Cavalry Division in order that the latter may be in all respects independent and capable of acting alone. Lancer regiments, all of which have received a complete training in light cavalry duties, are perhaps more especially fitted for employment as Divisional cavalry where they are for the most part in close connection with infantry. It is quite enough for them to have every fourth man armed with a long-range carbine, in order that a sufficient number may always be in readiness for detached duties. In the Cavalry Division, on the other hand, lancers must rather be considered as part of the heavy cavalry, for on account of their lances they are less adapted for fighting on foot, and besides, they have *per* squadron a small number of carbines. If then, lancer regiments are principally employed as Divisional cavalry, it would appear advisable to form Cavalry Divisions of two-thirds light cavalry (dragoons and hussars), and one-third heavy cavalry (cuirassiers, or as the case may be, lancers.)

A simple way of arriving at this proportion would be to make the normal Cavalry Division consist of 3 brigades—2 of light and 1 of heavy cavalry, each brigade being of 2 regiments.

This formation and numerical strength is equally suited to each of the two different classes of duty which a Cavalry Division is called on to perform, namely, to act as a fighting body, and as a branch of the army entrusted with the duty of reconnoitring. For battle, a body of cavalry must generally be formed in three lines, and the proposed normal formation of the Cavalry Division enables this being at once effected by simply placing the 3 brigades one behind the other. For reconnaissances, the Divisional General would have at his disposal 2 light brigades which would usually be disposed side by side, while the heavy brigade kept in reserve at the outset, would follow the movement, and be directed on the point where it would probably be employed in case of battle, or sent to any other place where its support might be required.

It is desirable that the Cavalry Division should have a *force of artillery* attached to it, both when employed on reconnoitring duty and on the field of battle, in the former case to overcome the resistance which might be offered by small detachments consisting of the three arms, or to cover the retreat of the cavalry, and in the latter case to make a rapid but *effective* preparation for the decisive attack. The only question is of what strength the force of artillery should be. The minimum force of artillery to be assigned to a Cavalry Division is a battery, for the latter cannot be kept permanently split up into half batteries. As a maximum, more than 3 batteries, that is, a battery to each Cavalry Brigade, could never be required. It is evident that with only one battery per Division, the action of the artillery would often be limited to an undesirable extent, and we therefore pronounce in favour of the maximum of 3 batteries (forming a regular division (*Abtheilung*)). This would permit of every possible requirement being most amply met, of a diminution of the work required from each of the 3 batteries, and finally, in the event of battle, of the artillery division taking an active share in the engagement under the special orders of the General commanding the Army. If the latter view taken of the case be considered inadmissible, on the ground that the Cavalry Division should not have its artillery separated from it, and that the former would rarely be called on to take part in an action till near its close, the question arises whether by the assignment of 3 batteries to each Cavalry Division, the artillery strength of the army available for battle is not unduly weakened. If this question be answered in the affirmative, we must be content with 2 batteries, which while the Cavalry Division is employed on reconnoitring duty, would be attached to the 2 light brigades. This force of artillery may indeed be taken as sufficient under most circumstances.

The general conclusion from the foregoing considerations is—that the principal part of the cavalry of an army should be formed into independent Divisions and placed directly under the orders of the Generals commanding Armies; that the Divisions should preferably consist of 3 brigades (1 heavy

and 2 light), each of two regiments; that infantry should not be permanently attached to them; but that an artillery division of 2 or 3 horse artillery batteries should be assigned to each Division.

The number of such Divisions that can be formed, depends on the number of cavalry regiments remaining available after a regiment has been deducted for each Infantry Division, to act as Divisional cavalry.

The necessity of this last arrangement will be considered more in detail later on.

Now, according to the peace organisation of the German Army, only the Guard Corps is in a position to attach 2 regiments to the 2 Guard Infantry Divisions, and to furnish in addition a Cavalry Division of 6 regiments, while the remaining Corps have only from 2 to 4 regiments available for this latter purpose. It follows therefore, that the formation of Cavalry Divisions cannot be considered a question to be settled by the Corps Commanders.* On the contrary, the formation of Cavalry Divisions for time of war must be specially laid down in the *Ordre de Bataille*, which should also assign them to the different Armies according to the probable requirements of each.

What we have just said about Cavalry, applies equally to *Artillery*. A point to be specially considered is whether large masses of artillery should be formed to be placed under the immediate orders of Army Commanders.

In the campaign of 1866, the 3rd and 4th Prussian Corps were not formed as such, but instead, the 5th, 6th, 7th, and 8th

* According to the peace establishment of the army, the 12th Corps (Saxon) and the 15th Corps are shown as possessing a Cavalry Division as well as the Guard Corps. They, however, possess in peace time, only six cavalry regiments. Special considerations have rendered the formation of Cavalry Divisions, even in time of peace, desirable with them as with the Guard Corps. To permanently form all cavalry regiments into Cavalry Divisions, and withdraw them from the Divisions to which they now belong in peace (which consist, as a rule, of two brigades of infantry and one of cavalry) would be in direct opposition to the ideas arrived at after the disastrous war of 1806-7, which led to the suppression of the then existing "Inspections" of cavalry and infantry, and to the formation in their place, of Divisions composed of troops of both arms.

Divisions were placed under the immediate orders of the General commanding the 1st Army, and the artillery which would have belonged as Corps Artillery to the 3rd and 4th Corps, had they been formed, was combined into an Army Artillery Reserve. The body thus formed, proved itself to be one difficult to find quarters for, and unwieldy both on the line of march and in battle. It was never possible to employ it as a whole, so as to obtain an effect commensurate with the number of batteries of which it consisted, and this indeed, quite agrees with the experiences of Army Artillery Reserves gained elsewhere. It was soon evident that in spite of the most careful arrangements, the great disproportion which exists between the depth of artillery in column of route, and the front which it requires in line of battle would, in the case of such a large mass, occasion serious inconvenience. As then, both theory and practice are equally opposed to the formation of large bodies of artillery as constituent parts of an army, we are justified in assuming that as in the campaign of 1870-71, so in the future, no Army Artillery Reserve will again appear in the *Ordre de Bataille*.

The final decision of this question, however, just as the ephemeral appearance of such a formation during the campaign of 1866, is closely connected with another question, namely—whether the infantry should be grouped in larger or smaller bodies, that is, whether the primary subdivision of an army should be into *Army Corps* or *Divisions*. This brings us back to the outset of our remarks, where we enunciated the principle that the *primary* subdivision should include as many units as possible, not more, however, than can be directed with certainty and coherence by one chief. This condition, however, if strictly carried out, that is, if an army were always to contain the same number of primary subdivisions, would necessitate these subdivisions being of variable strength depending on that of the army. It needs no demonstration that to organise an army in this manner would be impracticable. We must, on the contrary, while giving due weight to the principle above stated, fix a *normal strength* for the primary subdivisions of the army, and the number of these in each army must then be made to vary according to the numerical strength of the latter.

This principle is now universally agreed to; the only point on which any discussion has lately taken place, is whether the primary *normal* subdivision of an army should be the *Army Corps*—a body of some 40,000 men (including trains, etc.,)—or the *Division*—a body of about half the strength of the Army Corps. Although in the case of the German Army, the question has been practically decided in favour of the Army Corps, yet in view of the trial of the other system which was made in the campaign of 1866, as well as of the adverse opinions which seem to prevail in some other armies, it may be well that we should examine the subject more closely.

To begin with, apart from the campaign of 1870-71, we have to consider* the Army Corps organisation as a result of the experience gained by the great and protracted wars in the beginning of this century, and to look on it with a certain respect in consequence.

Since that time, the considerations influencing the subdivision of an army have undergone no change, except that with the introduction of universal liability to military service, the *numerical strength of armies* has rather *increased*. This fact is certainly no argument in favour of *diminishing* the primary subdivisions of an army. Doubtless, if we had to deal with an army of some 70,000 or 80,000 men, it might seem more rational to form it in 4 Infantry Divisions and 1 Cavalry Division, than in 2 Army Corps and 1 Cavalry Division. The 2 Army Corps really consist of but 4 Infantry Divisions, and in this case Corps Commanders would seem to be an unnecessary, and therefore a hurtful intermediate authority. But when the army of a country consists in peace time, of 18 Army Corps which in war would be formed into 4 or 5 Armies, each of these would have on an average a numerical strength twice as great as in the case we have just supposed. To carry out the Divisional system here, would involve the primary subdivision of each Army into some 10 different fractions, which would of itself be a serious drawback to its effective command. Experience teaches us moreover, that the main difficulty in regulating the daily movements of an army does not arise so much from the troops themselves, but from what we class under the head of supply

columns, trains, baggage, etc. If the General commanding an Army had, besides regulating the daily march of some 8 Infantry and 2 Cavalry Divisions, also to issue instructions (which must often be very varied according to the special circumstances of the case) as to the position which the ammunition trains and supply columns were to take in the order of march, his task would be one, the effectual accomplishment of which would be next to impossible. The principle of the distribution of labour must be applied here. It is especially in the matter of marches—that almost daily recurring incident of warlike operations—that the advantages of the Army Corps as the primary subdivision of the army, are particularly apparent. The Army Corps, with that portion of its columns and trains from which, as a rule, it cannot be separated, occupies a length in column of route of 25 to 30 kilometres (15 to 19 miles), that is to say, just a full day's march, if only one road is available for the Army Corps, and this is generally the case in the movement of great armies. The arrangements for the march of a body of troops along a single road can be most effectually made by the officer who permanently commands the body of troops in question. A regard therefore to the vitally important matter of securing that proper arrangement for the daily march of the troops shall be made, points plainly to the advisability of the formation of Army Corps.

Experience leads us to the same conclusion from a consideration of the various special requirements of individual bodies of troops. In order to diminish our *impedimenta* as much as possible, we must use every effort to reduce to the smallest possible limits the amount of ammunition, supplies, clothing, hospital equipment, etc., which we carry along with us, and the greater the size of the primary subdivisions of an army in time of war, the easier is it to do this; for the requirements of large bodies of men are pretty much the same in character, whereas the smaller the bodies are, the more dissimilar do their wants become. From this point of view, therefore, it seems preferable that the primary subdivision of an army should be into Army Corps, instead of Divisions, which are only of half the size. It need scarcely be pointed out that the latter, if they are to form

the primary subdivisions of the army, must be fully equipped with ammunition columns and trains of every kind; and it would be impossible for the General commanding the Army to regulate all the different branches in such a way as to satisfy at all times the requirements of the Divisions, unless indeed the army consisted of only 3 or 4 Divisions. But this is a case which would only very exceptionally occur, and which we need not take into account in devising a system of organisation.

If we look only at the employment of the army on the field of battle or rather in actual combat, the Divisional organisation might perhaps be considered admissible, although even here it would often be very desirable to have leaders possessing the power of commanding several Divisions. Even when 2 Divisions are engaged side by side in a long line of battle, it may often occur that, although the special tasks to be accomplished by each have been most carefully defined, there may turn out to be a very considerable difference in the difficulty of fulfilling these tasks. The disproportion may even rise to the ratio of two or one. While perhaps one Division can easily perform the duty allotted to it with two-thirds of its infantry supported by its artillery, the other Division may find it necessary to have its attack prepared by a more powerful force of artillery than it itself possesses, and may require in addition a special reserve of infantry, which it is itself unable to furnish. The Division entrusted with the easier duty might supply this reserve; but will it do so voluntarily before it has made *absolutely certain* of its own success? In such a case it is undoubtedly desirable that part of one Division should be detached to form a reserve for both, and therefore that there should be a commander possessing the authority to do this. It is clear that this authority should be exercised by an officer of high rank, that is by a Corps Commander, and not by the senior Divisional Commander, who besides, would be thereby diverted from his own proper functions. But it is when an army is marching in separate columns, as often happens, for example, in the earlier operations of a campaign, that the necessity for such superior authority is especially apparent. Each column is made as strong as possible, and each may become independently engaged with the enemy. Now the

General commanding the Army can only be with one of these columns, and can therefore exercise an immediate command over it only ; and to entrust the command of the others to the senior Divisional Commander whose Staff is only just sufficient for the management of one Division, is to leave too much to chance. A permanently constituted authority *must be more efficient* than one established for a particular occasion only.*

The basis of the *Ordre de Bataille* must then be the Army Corps system, which corresponds, moreover, to the peace distribution of the German Army. Cavalry Divisions must also be constituted, as we have already explained.

We come now to consider the further subdivision of the Army Corps, which may consist of from 25 to 30 battalions. According to the regulations in force in the Prussian Army up to the year 1853, the Army Corps had a normal strength of 24 battalions of infantry and one of rifles (*Jäger*), and was divided into 4 Infantry Divisions, to each of which was attached a cavalry regiment and a battery (of 8 guns). These Infantry Divisions were formed from the four Infantry Brigades which existed on the peace footing. From four other cavalry regiments, also belonging to the Army Corps, the Cavalry Division was formed, a horse artillery battery (of 8 guns) being attached to it. The Reserve Artillery of the Army Corps consisted of 4 field and 2 horse artillery batteries, or 48 guns.

This *Ordre de Bataille* was based on the system of enrolling in the active army the Landwehr contingents of the first levy, and therefore contained all the defects of this system. Four of the 8 cavalry regiments belonged to the Landwehr and were therefore not formed till the moment of mobilisation. It cannot be maintained that it would have been advisable to have

* It is perhaps worth mentioning that the theorists who sometimes amuse themselves with advocating a Divisional, in place of a Corps organisation, adduce in support of their views the only defeat sustained by the Prussian army in the Campaign of 1866, that of Trautenau. They do not attempt to prove, however, that the 1st and 2nd Divisions would have been more successful on that day than the 1st Army Corps was : they also overlook the services rendered at the same time by the 5th Army Corps, which it would hardly have been capable of, had it not consisted of a regularly constituted body placed under the direct control of a single chief.

employed these as Divisional cavalry, but the Commander of the Cavalry Division was just as little pleased when he found himself at the head of a body composed of one Line-cuirassier Regiment and 3 Landwehr cavalry regiments. The division of the Army Corps into 4 small Infantry Divisions entailed therefore the splitting up of the only part of the cavalry which was at the outset fit for service. The distribution of the artillery was equally little in accordance with sound principles, for the proportion of 5 batteries attached to the separate Divisions seemed strangely small compared to the 6 kept united as Reserve Artillery; the proportion of one battery *per* Infantry Division was again decidedly too small.

These evils were partially remedied (even before the system of incorporating the Landwehr troops of the first levy in the active army, was given up), by the division of the Army Corps into 2 Infantry Divisions, 1 Cavalry Division, and an Artillery Reserve. Each Infantry Division had now attached to it a cavalry regiment and 2 batteries (of 8 guns each). In the most unfavourable circumstances, therefore, only 2 Line cavalry regiments were required for employment as Divisional cavalry, and the Cavalry Division now consisted of 6 regiments, thus acquiring a superiority in numbers over its former establishment, which compensated in some measure for the inferior efficiency of its Landwehr cavalry regiments. The Infantry Divisions had, it is true, only 2 batteries each, so that the Divisional artillery of the Army Corps consisted, as hitherto, of 4 batteries (or 5, including that attached to the Cavalry Division), but by attaching the batteries in pairs to the Infantry Divisions, in place of singly to the brigades, the advantage was gained that both batteries could be directed by one leader and their fire concentrated with a common object.

In the year 1860, the system of associating Landwehr troops with those of the Line to form the units of the Army, was abandoned.

Apart from the other defects of Landwehr troops, which were becoming more apparent from day to day, the introduction of railways as a factor in the operations of war, was a strong reason for their exclusion from the *Ordre de Bataille* of the active

army. For since long preliminary marches are now dispensed with and the troops are brought in a very short time almost directly from their garrisons on to the very field of battle, it seems desirable that those which are only embodied at the moment of mobilisation should be relegated to the second line, where they may have time to complete and establish their organisation. These considerations, as well as the further development of artillery, the increase of the number of batteries assigned to an Army Corps (the number of guns per battery being at the same time reduced from 8 to 6),* and the recognition of the necessity of strengthening the Divisional artillery, finally led to the formation in which the Prussian Army Corps fought during the campaign of 1870-71.†

Each of the 2 Infantry Divisions consisted of 2 infantry brigades (the brigade being composed, as a rule, of 2 infantry regiments, but having added to it according to circumstances, a rifle battalion, or sometimes a third infantry regiment), a cavalry regiment (of 4 squadrons), an artillery division (of 4 batteries, each of 6 guns), 1 or 2 companies of pioneers (sometimes with a light bridge train or intrenching tool equipment), and a bearer company (*Sanitäts detachment*.)

This composition gives the Infantry Divisions a certain amount of independence within the limits of the Army Corps to which they belong; they are quite capable, that is to say, of occupying in the line of battle a space proportionate to their numerical strength and, supported by the Divisions on their right and left, to fight on it successfully whether on the offensive or defensive. The amount of cavalry and especially of artillery assigned to them must be looked on as a minimum; with a smaller amount of artillery than that assigned to it the Division would hardly ever be successful in battle, while in order to carry out the duty entrusted to it, it will often require a reinforcement of artillery which would be furnished by order of the General commanding the Army Corps from the *Corps*

* In some cases, 6 batteries of 4 guns each, were formed in war time out of the 3 horse artillery batteries, which existed in time of peace.

† The formation of the Army Corps which did not belong to the Prussian Army, was different in some respects.

Artillery (6 field batteries of 6 guns each and sometimes horse artillery batteries in addition).

It is quite possible to imagine cases in which either from the conditions of the combat or from the nature of the ground, the cavalry regiment attached to a Division cannot be employed at all or only partially so. Nevertheless, in view of the varied duties which fall to the lot of the Divisional cavalry on the line of march, in the bivouack, or in cantonments, even when the task of reconnoitring and watching over the safety of the whole army is performed by the Cavalry Divisions, we cannot hold that an effective strength at the outset of a campaign of 600 sabres (the establishment of our cavalry regiments at 4 squadrons each), is too high for an Infantry Division of some 12,000 bayonets. Even if, as some people think, a considerably smaller number of cavalry would be sufficient, it would be most inadvisable to *permanently* divide a body like a cavalry regiment. The alternative would be to make these regiments weaker. As, however, hardly any other argument can be adduced in favour of such a measure, and as it may be maintained with confidence that we have in this respect already reached the minimum, we have really no option but to attach permanently a cavalry regiment to each Infantry Division.

Each Infantry Division had attached to it part of the *Pioneer troops* belonging to the Army Corps (3 companies) and part of the *Pioneer trains* (light bridge train and intrenching tool column). This distribution arose from the requirements which almost daily presented themselves on the line of march. We will explain later on how, in consequence of our experiences in the campaign of 1870-71, we have introduced a modified distribution of our pioneer troops, particularly of their trains, maintaining at the same time the principle of attaching them to the Infantry Divisions.

Finally, a *Bearer Company* was attached in the *Ordre de Bataille* to each Infantry Division in order that in all cases immediately after the commencement of a serious engagement, the wounded might be picked up and at once attended to.

In conformity with the principles which had led to the adoption of the Army Corps, instead of the Division, as the

primary subdivision of the army, no other columns or trains were assigned to Infantry Divisions in the *Ordre de Bataille*. The power of *temporarily* attaching such branches, in the event of its becoming necessary, was reserved, however.

Certain Divisions which were generally employed on detached duties, had a larger proportion of cavalry and artillery allotted to them and were also more plentifully provided with trains and supply columns, in order to render them capable of acting independently, and thus confer on them complete freedom of operation necessary for the accomplishment of the special tasks allotted them.

What we designated as *Reserve Artillery* in the year 1866, we called *Corps Artillery* in the campaign of 1870-71. This change in designation was intended to express the idea that the body in question was not to be really considered as a *Reserve*, but simply as a *part of the main body* to be employed under the orders of the Corps Commander. While, in the campaign of 1866, the *Reserve Artillery* was, in conformity with an erroneous theory, relegated almost to the tail of the columns of route, so that it could only come into action in the last phases of the battle and thus produce but little effect, in 1870-71 things were very different. We saw in the battles of that campaign the *Corps Artillery* marching near the heads of the columns, rapidly pushing on in advance, preparing by a vigorous fire the attack of the main body, and often gaining important results by its individual action alone.

The Corps Artillery, which consisted of 4 field batteries and the available horse artillery batteries (that is, those not attached to the Cavalry Divisions), had besides attached to it 9 ammunition columns (4 small arm and 5 artillery ammunition columns).

This union was dictated by purely administrative considerations, and it does not seem to be warranted by the nature of either of the two bodies—the batteries or the ammunition columns.

While we make every effort to concentrate the former as rapidly as possible on the field of battle, our aim is to keep the latter as far from it as practicable and to allow them to approach

only when an immediate supply of ammunition is urgently required, and then no nearer than is absolutely necessary. Besides, since the 9 ammunition columns of the Army Corps have to provide reserve ammunition not only for the batteries of the Corps Artillery, but also for the whole of the infantry, cavalry, and artillery of the Divisions, it is certainly desirable that they should be placed directly under the orders of the officer who has to regulate the supply of ammunition throughout the Army Corps, that is, under the Officer commanding the Artillery (Officer commanding the Field Artillery Brigade.)

The third bearer company attached to the Corps Artillery, may perhaps be considered too strong in proportion, it being of the same strength as the bodies of the same nature attached to the two Infantry Divisions. The possibility, however, of forming it into two sections, capable of being employed independently wherever their services may be required, and also the circumstance that in a great battle these formations for tending the wounded must, once they have taken up their position, have their sphere of activity determined by local considerations rather than by a regard to the body of troops to which they properly belong, sufficiently justify the assignment of the third bearer company to the third great fighting component of the Army Corps.

The *Trains* of the Army Corps consisted of 5 Provision Columns (*Proviant Kolonnen*), the Field Bakery Column, the Horse Dépôt, and a Train Escort Squadron; the latter performed the orderly duties necessary between the various trains, which were often widely separated from each other, and exercised military superintendence over 5 Park Carriage Columns (*Fuhrpark Kolonnen*) consisting of vehicles drawn by hired or requisitioned teams. This organisation was a step in advance of the system of purely hired transport followed at the beginning of the campaign of 1866, but it has been since further developed and we now have in view the formation of park carriage columns formed of exclusively military transport. The *Pontoon Column* formed part of the Army Corps trains in an administrative point of view, but its disposal was reserved in the hands of the General Commanding.

The 12 *Field Hospitals* may really be reckoned among the

trains, although they theoretically belonged to the *administrative departments* (*Administrationen*) of the Army Corps; they were otherwise under the orders of the *General Commanding*, being called on to provide for all the requirements which present themselves with an Army Corps in the field.

In the foregoing pages we have sought to give a general view of the manner in which the principles which guide the distribution of an army have been carried out by the *Ordre de Bataille* of the German Army up to the campaign of 1870-71. In Chapter II. we shall proceed to a more detailed examination of the formation of an army in time of war, under various headings, but it is advisable to discuss here certain points bearing on particular formations of troops—both those formations which conform to the *Ordre de Bataille* and those which necessarily deviate from it in consequence of the troops concerned being employed for special ends.

In considering the special formation for battle of the primary units of an army (supposing the *Ordre de Bataille* to be adhered to), the main question to be decided is whether the formation shall be *by wings or by lines*.*

This is not a question which concerns the *artillery*; it has only one formation for battle, viz.: its guns or batteries placed side by side at the proper intervals; it always fights in a *single line*. If (apart from batteries kept at the outset in reserve), a formation of artillery be spoken of as having depth, the term must include the ammunition waggons, etc., that is, the non-combatant part of the artillery.

It is only therefore with regard to *infantry* and *cavalry* that we have to determine whether the normal formation shall be by *wings* or by *lines*.

It appears to us that the numerous discussions which have lately taken place on this subject have shown a tendency to assume too abstract a character as the result of the desire to prove one or other formation to be the right one. It should, before all things, be borne in mind that in the formation for

* Whether the subdivisions of the unit shall be placed alongside each other, or one in rear of the other.

battle, the *unities of command* as established in the *Ordre de Bataille*, should be adhered to. It would therefore, for example, be quite wrong in dealing with a body of troops, to designate commanders of lines, and then to arrange the troops for battle in wings, or *vice versé*, to dispose the troops in wings, and then when it came to battle, to draw them up in lines. The question to be solved is then whether we are *to fight* by wings or by lines.

Both formations have unquestionably their advantages and disadvantages. The latter may, in certain cases, be so great as to render the adoption of one or other of the formations quite impracticable.

If circumstances permit and require that the front line shall be directed by a single leader, and if it be at the same time desirable that the second line shall, in the first instance, be kept in rear, then undoubtedly the formation by lines is the preferable one. Even in this case, however, the formation finds a limit in *the extent of line* which one leader can efficiently control. With regard to this extent, the dimensions permissible at the time of Frederick the Great cannot be allowed to hold good at the present day.

In the case of the *infantry*, the dispersed order of fighting requires different arrangements to those which formerly prevailed, and even the warmest advocates of the formation by lines do not propose that an *Infantry Division* shall be formed up for battle by lines, that is, with its two brigades, each forming a line, one in rear of the other. On the contrary, it is not disputed that a Division must be formed by wings, that is, with its brigades alongside each other. Now those who maintain that on the same principle, an infantry brigade should always be formed by wings, or with its two regiments alongside each other, quite overlook the fact that then the battalions of these regiments must be arranged in lines, that is, one in rear of the other, and they thus in this case renounce their principle. It may then be confidently maintained that in this matter there is no principle of general application, but that in each separate case, each commander must make up his mind whether he should draw up his troops for battle by wings or by lines, and

dispose of his subordinates and the units under their command accordingly.

Nevertheless it is advantageous, both in the case of "rendezvous" formations and battle, that the normal formations and modes of deployment of an infantry brigade, should be of such a nature as to be capable of being quickly effected by means of the regulation manœuvres and words of command, without the necessity of special instructions. Since the formation by wings has not been proved to possess any absolute superiority over that by lines, it appears desirable to retain in this case the formation of the brigade hitherto in vogue, that is, by lines, particularly as it simplifies the transition from the natural order of march into the formation for battle.

Of course, we do not hereby mean to preclude the adoption of the formation by wings in "rendezvous" formations when special orders to that effect have been given.

The formation of a *force of cavalry* for battle is preferably in lines; this principle has remained unassailed since the unparalleled achievements of the Prussian cavalry in the campaigns of Frederick the Great. But it seems to us that the length of line to be directed by a single chief must be less now than in those days, in the case of cavalry as well as infantry. This principle is carried out in the normal formation of our Cavalry Divisions, according to which, each brigade (with a length of front of about 400 metres (440 yards) forms a line, the front line being, if necessary, supported by a regiment brought rapidly up from the second line, to execute a flank attack. It is generally adduced as an argument in favour of the formation by wings, that it permits of the front line being reinforced by troops belonging to the same unit. While the cavalry adhere to the principle of the formation by lines, they yet retain this advantage by keeping at the outset a few squadrons of the first line a short distance in rear of it as supporting squadrons. When the line comes to blows, these squadrons can be rapidly brought up to a doubtful encounter in favour of their regiments.

In spite of all this, it cannot be disputed that cases may arise which may compel a Cavalry Division to fight by wings,

that is, with its brigades alongside each other. The formation of the brigades would, in this case, be by lines, that is, one regiment behind the other.

The normal battle formation, however, of a Cavalry Division, and consequently its "rendezvous" formation also, is by lines, the brigades one in rear of the other, the brigades themselves being formed by wings, that is, the regiments alongside each other.

Before concluding this chapter, we must make a few remarks on the deviations from the *Ordre de Bataille* which are often unavoidable when combinations of troops have to be arranged for special purposes.

The principle must always be adhered to, that modifications in the *Ordre de Bataille* are permissible only as far as is absolutely necessary for attaining the object in view, and that the *Ordre de Bataille* is to be at once reverted to as soon as the necessity for a deviation from it has ceased. The reason of this is evident; for every disturbance of the *Ordre de Bataille*, however indispensable it may be under certain circumstances, exercises nevertheless a prejudicial effect on the interior economy of the body of troops concerned.

Further, it is an old principle that when troops have to be detached, the question to be asked is not—"how strong shall the detachment be?" but on the contrary—"how weak can we make the detachment?" This principle is based chiefly on the importance of keeping the main body intact, but it is equally in accordance with the desire to disturb the *Ordre de Bataille* as little as possible.

If circumstances render it imperative to adopt an exceptional arrangement of troops, and to keep it up for several days—as for example, in the case of an advanced guard—it is then desirable, as we said at page 2, not to alter the formation once settled, without urgent reason, but to retain it as far as possible throughout the period in question. In this way the advantages resulting from a *strict* adherence to the *Ordre de Bataille* are at any rate obtained to a *certain extent*. On the other hand, daily recurring changes in the distribution of the troops are prejudicial to their vital interests, to precision and certainty in the transmission of orders, and finally to the successful accomplish-

ment of the military objects in view. A change only becomes necessary, when without it, the desired purpose could either not be attained at all, or only with great difficulty, or when the exhaustion of part of the force renders it desirable to employ it elsewhere and to replace it by fresh troops.

To form a correct view of the various points which must be considered in such a case, and to take the appropriate measures, must always be a question for judgment and decision at the moment.

Special formations of troops may become necessary, for employment in *battle*, on the *line of march*, or on *outpost duty*, as also when a *force has to be detached* to accomplish a certain object, especially such an object as requires the employment of a detachment composed of the various arms, and under the strength of a Division.

In *battle*, the *Ordre de Bataille* would, as a rule, only have to be deviated from when separate *reserves* have to be formed. The Army Corps cannot dispense with a reserve of infantry, and if a separate body of troops is not placed at its disposal by the General commanding the Army, to act as a special reserve, it must itself form one, either from one or both of its Divisions. So also, it is often desirable to keep in reserve part of the Corps Artillery, and this measure is certainly preferable to the arrangement of withdrawing batteries from the Divisional artillery to form a reserve. For, as we have already mentioned at page 17, the proportion of artillery assigned to the Infantry Divisions must be looked on as a minimum. When an Army Corps goes into battle with the Army of which it forms part, it will rarely require to form a cavalry reserve, for that is a matter for the Army Commander, in whose hands lies the disposal of the Cavalry Divisions, to arrange. On the other hand, an Army Corps operating independently would generally possess a larger force of cavalry than that normally assigned to its Divisions, and this cavalry, after having performed the reconnoitring duties which may have been required of it, might be employed to constitute a cavalry reserve in case of a general action.

An Infantry Division going into battle as part of an Army Corps, hardly requires an artillery reserve; it may, therefore, at

the very outset of the battle, bring the whole of its artillery into action, for a reserve for the Divisional artillery is really at hand in the shape of the Corps Artillery. A reserve of infantry must always be formed, even if this should not have been ordered by the General commanding the Army Corps. The Divisional cavalry would be kept in reserve at the beginning of the battle, unless it were necessary to employ it in reconnoitring work, especially on the flanks. It must, however, be kept close enough to the fighting line to be able to seize rapidly, and of its own initiative, any opportunities favourable to its working which may arise. The word "reserve" is thus hardly applicable here in its strict sense.

An Infantry Division operating independently would, as a rule, have assigned to it a larger proportion than usual of cavalry and artillery. It would, therefore, be in a position to form a sufficient reserve of these arms.

The reserve of a Cavalry Division is formed by its third line, or as the case may be, by its artillery kept somewhat in rear.

Reserves formed of troops of the different arms should never be placed under the command of a single leader.

For it is not to be expected that the various arms composing the Reserve would all be called on to act simultaneously at the same spot, or that the objective points assigned them in battle would be close to each other. The leader would thus find his command broken up before he had an opportunity of exercising any control over it. Nevertheless, whenever it occurs that the whole of the reserves are at first concentrated at one point, it will be the duty of the senior officer present to exercise, in unforeseen emergencies, the authority of his rank according to the regulations of the service, and give a decision in the event of any differences of opinion arising.

On the *march*, the bodies of troops which are moving nearest to the enemy have to form an *advanced guard* (or a *rear guard*), and in certain circumstances, *flanking detachments* as well. The strength and composition of these must vary very much, according to circumstances. For reconnoitring a large extent of ground, and ensuring the security of the main body, the employment of a large force of cavalry is requisite, particularly

when the army is advancing. When it is desirable to check a pursuing enemy, the rear guards must be reinforced with artillery. Advanced guards must also be furnished with a considerable force of artillery, when it is expected that they will have to fight in order to cover the deployment of the main body, or when in the case of a pursuit, it is desirable to at once crush the resistance of the enemy's rear guard. It needs, we think, no argument to show that all the available cavalry should be with a pursuing advanced guard. When flanking detachments are only employed for purposes of observation, they should be, as far as possible, formed of cavalry only ; but if they are likely to be seriously engaged, they must comprise artillery and infantry as well.

An Army Corps marching on *a single* road forms an advanced (or rear) guard, and whatever flanking detachments may be considered necessary. When it is marching on *two* roads, similar measures would generally be taken independently by the two Infantry Divisions. The Corps Commander has then only to arrange for keeping up communication between the two advanced (or rear) guards, and for reinforcing one or the other by means of whatever cavalry may have been specially attached to the Army Corps. If it is expected that the rear guards will have to fight, it may be often desirable to reinforce them with part of the Corps Artillery.

An Infantry Division makes analogous arrangements to those just described for an Army Corps.

A Cavalry Division on the march would generally be entrusted with the duty of reconnoitring a more or less extensive tract of country, thus ensuring the safety of the remainder of the Army. This duty necessitates its division into several columns (consisting usually of brigades with artillery attached). Each of these columns then forms its own advanced guard (or rear guard, as the case may be), the connection between the different advanced (or rear) guards being arranged by the Divisional Commander. If the whole Division has, as a temporary measure, to advance along one road, as for example in passing a defile, an advanced guard would be formed by one of the brigades, to which artillery would be attached. The *Ordre de*

Butaille of the Cavalry Division is thus usually only liable to modification so far as its artillery is concerned, the batteries of which cannot be kept together in the divisional (*Abtheilung*) formation.

On the *march* it is generally unnecessary to form a *reserve*. All the troops not detached on reconnoitring or outpost duties either in advance, in rear, or on the flanks, constitute the *main body*, for which no commander need be detailed, even when the march takes place on a single road. The reasons for this are closely allied to those, which as fully explained on page 26, render it unadvisable to appoint special commanders for reserves consisting of the different arms.

Another reason is—that on the line of march, there is nothing to prevent the commander of a column which is moving along a single road, from regulating himself the march of the main body; and if he has to be temporarily absent (as for example in going to see for himself what is going on in front), he can be represented, if necessary, by the senior General present.

The *task of watching over the safety of the troops during rest*, that is, after the termination of the day's march, or in the case of a protracted halt, is entrusted to the *outposts*, which are naturally formed from the advanced (or rear) guard and the flanking detachments. No special distribution of the troops for this purpose is therefore required to be made by the higher commanders. The advanced guard which has been already detailed for the march, as well as the flanking detachments which have been entrusted with objects of a special nature, continue without any further orders, to see to the security of the Army, and to carry out their reconnoitring duties when the force is halted. Sometimes at evening, special reinforcements of artillery and cavalry, which have been attached during the day to the advanced (or rear) guard in anticipation of an engagement, may be directed to rejoin the body to which they belong; but before giving an order to this effect, it may be well to consider whether a similar arrangement may not be necessary on the following day. For, if so, the order would in most cases entail on the troops in question an unnecessary march to the rear and then again to the front, which could only

be justified by their thereby finding better quarters, or more abundant supplies.

When battles are prolonged to nightfall and are only temporarily interrupted by darkness, without the issue being definitely decided, the side which is determined to continue the struggle next morning, and therefore to bivouack during the night on the battle-field, must protect itself against surprise by some system of outposts. The best thing to be done in such cases, is to attack the enemy during the night with the best available troops; but as such an undertaking is rather a hazardous one, it would only be advisable if the troops executing it were very reliable, and if the scale of victory had already slightly turned in their favour. A safer measure is—that the troops which happen to be nearest to the enemy, or those which may be brought up from the reserve into the front line, should remain during the night in immediate readiness to fight, and keep the “touch” of the enemy. As a general rule, no special distribution of troops would take place on such occasions; each principal leader would rather improvise measures for securing the repose of his troops according to the ground they occupy. On the other hand, when there is a conscious feeling of having already gained the victory, or an inclination to beat a speedy retreat, it would be desirable to assemble whatever units still remain intact at the disposal of the General Commanding-in-chief on the spot, in order to employ them on the following day, either as an advanced guard in pursuit, or as a rear guard to cover the retreat. To them would also be entrusted the task of securing during the night the repose of the troops which had taken part in the battle.

With regard to the formation of *detachments to perform special duties*, the general principle is—that they should be made as weak as possible, but at the same time it must be remembered, that to detach small parties of infantry to great distances is always a proceeding attended with risk.

Whenever, therefore, the duty can be performed by cavalry, supported, if necessary, by artillery, infantry should never be employed. In consequence of the slowness of its movements, the safety of a body of infantry compelled to retreat before

superior forces may easily be imperilled, and in any case it would always find difficulty in rejoining the portion of the army from which it was detached.

In conclusion, we have only to insist on one point, viz.,—that in all cases when detachments have to be composed of troops belonging to the different arms (the word detachments is here used in a broad sense to include advanced and rear guards), the *Ordre de Bataille* should never be disturbed more than is absolutely necessary. If, for example, it be necessary to interfere with the *Ordre de Bataille* of a Division, that of the brigades should, if possible, be kept intact. This principle becomes of especial practical importance in the formation of advanced guards, etc., which, it has been proposed, should be composed of battalions taken from different regiments in order to obtain thereby the greatest possible freedom in the selection of leaders. It is usual to adduce in support of this plan of proceeding, the example of the army of Silesia during the campaign of 1813–14, the regulations of which on this subject are admitted to be perfect models of their kind. But those who do so quite overlook the fact that circumstances have changed since that time, both as regards the intrinsic value of the troops themselves as well as the training of the higher leaders. Various considerations at that time necessitated the union of Landwehr troops to those of the Line, to form the units of which the army of Silesia consisted. The former, which consisted principally of recruits, had neither sufficient training to perform outpost duty efficiently, nor were they in a condition to support the great hardship and fatigue which it entails; it was therefore necessary to employ on this service troops of the Line only. In order not to deprive the various brigades of the whole of their reliable troops by taking from them entire regiments for this purpose, the plan was adopted of detaching battalions only which were relieved from time to time according to circumstances.

But at the present day there is no reason against detailing whole brigades or regiments (with cavalry and artillery) for duty as advanced guards, and, if necessary, also relieving the whole at once. And similarly there are to be found in every Army Corps several brigadiers, and in every Division several

commanders of regiments, who possess all the qualities requisite for commanding an advanced guard. Moreover, the most important part of this service now falls on the Cavalry Divisions, the commanders of all of which should be undoubtedly "born leaders of an advanced guard." The theory of "combined" advanced guards (*i.e.*, advanced guards formed of detached battalions) has therefore at the present time no real *raison d'être*.

The same principle holds good for *every* detachment. In very exceptional cases only, when excessive exertions are required which could only be expected from specially selected men and horses, it may be justifiable to depart from this principle in the formation of *small* detachments, and, for example—instead of detaching a squadron, to send 20 or 30 picked horses from each squadron of a regiment.

In connection with this subject, the *Ordre de Bataille* given in the Appendix, may be taken as an example to be followed in questions of the kind.

CHAPTER II.

THE WAR FORMATION OF THE GERMAN ARMY.

AN Army is transferred from a peace to a war footing by the operation known as *Mobilisation*. This process, especially as regards the preliminary or preparatory steps is, by the regulations of the Service, kept as far as possible secret. An examination in detail of the preparatory work which falls to the lot of the General Staff, cannot consequently be given; but the "*Plan of Mobilisation*," to which all officers of the General Staff have access, and the "*Instructions for Mobilisation*" issued to the different military commands and authorities, contain everything that it is desirable to know or learn. Besides, the preparatory work annually revised or drawn up afresh for mobilising the Army in the event of its being necessary in the course of the year, gives ample opportunity for acquiring the most thorough and intimate knowledge on the subject.

The transfer of an Army from a peace to a war footing requires, in the first instance—staffs, departments, corps, regiments, etc., to be completed with officers, employés, etc.; cadres to be filled up with additional men and horses; special staffs, departments, and corps only formed in case of war (such as *depôt* (*Ersatz*) and garrison troops) to be embodied; and finally, all these to be equipped for the field according to their various requirements.

As a preliminary step it is first of all necessary to clearly know beforehand in peace time the nature and number of the troops that are to be mobilised in case of war, and the equipment they are to be given according to the various objects they may be intended for. It must be consequently a matter of military organisation in peace to prepare in the most effectual way possible, the formation of the Army on a war footing by

providing sufficiently strong peace cadres, ensuring the necessary additional officers, employés, men, and horses, and having ready for immediate use the necessary arms, ammunition, clothing, equipment, and supplies and transport of every kind. It is only by being in a perfect state of preparation as regards such questions, that mobilisation can take place as planned and laid down, and all unnecessary loss of time be avoided.

As regards the latter point, it is a matter of the greatest importance that the calling in of the different annual contingents of men liable to service, the purchase or acquisition of the necessary additional horses, and the forwarding and issue of military *matériel*, etc., stored in the various dépôts, should be prepared beforehand with the greatest care, taking advantage of every available source of assistance afforded by the civil government and existing communications of the country. To attain a still higher degree of perfection in all such matters is what officers of the General Staff specially entrusted with the preparatory work of mobilisation, should always strive at.

There must always, however, be a certain limit to the rapidity of mobilisation, or rather restriction of time within which the whole process can be carried out, and beyond which it is impossible to go, mainly caused by the limit beyond which it is impossible to augment the traffic powers of the railway system of the country, and the fact that order and regularity are sometimes slightly disturbed in places owing to the unavoidable massing at certain points at the same time, of large numbers of men called to the colours. Order must, however, be maintained under any circumstances. And there is a certain guarantee for this if, as is enjoined by the instructions issued on the subject by the higher military authorities, a proper division of labour is observed, so that as many as possible may simultaneously co-operate towards the common end without collision or friction.

A process of mobilisation might, possibly, for instance, be imagined, in which, as regards preparatory work, only the Army Corps Commands and Landwehr-District Commands were concerned, and the Divisional and Brigade Commands so far set aside as to be only called upon to undertake the preparatory work as regards the mobilisation of their staffs.

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Such a plan would at once be undesirable from the fact that a series of persons without whose co-operation the whole process could not be worked out to the end, would be excluded from taking any part in the preparatory labours by which alone the necessary knowledge in the subject can be practically obtained.

The higher military authorities can at once see for themselves whether all preparations are duly and properly made, by examining and checking the *Diaries of Mobilisation* (*Mobilisierungs-Tagebücher*). These are kept up in advance, *i.e.*, in anticipation of mobilisation, by all staffs, departments, and corps, and should show the whole process until complete on a war footing with every step in sequence and chronologically arranged.

A. THE FIELD ARMY.

a. ORGANISATION OF THE COMMANDER-IN-CHIEF'S, ARMY, ARMY CORPS, AND DIVISIONAL STAFFS (HAUPT AND STABSQUARTIERE).*

A mobilised army requires in the first place to be *commanded*, and, as it is moreover more or less freed from the system by which it is administered in peace, it must as far as possible be organised so as to be independent and able to satisfy of itself its various wants as they from time to time make themselves felt. Communications with the mother country, and relations with the authorities who still carry on their administrative functions at home, are nevertheless indispensable, so that losses of every kind incurred in the course of military operations may be continually replaced, and the Army supplied with such things as, as a living body, it requires. It consequently follows that every Army Corps or Divisional Staff must, in addition to officers of the branches necessary for commanding and moving troops, be provided with officers and employés to carry on the duties of the various administrative departments.

The various branches and departments that have consequently to be considered in the formation of an Army, Army Corps, or Divisional Staff are as follows:—

The General Staff.

The Adjutantur.

The Artillery.

* See foot-note, page 90.

The Engineers.

The Judge-Advocate's Department (*Das Auditoriat*).

The Military Police.

The Intendantur.

The "Communications" (*Etappen*), including railways, telegraphs, and post-office.

The Medical Department.

The Chaplain's Department.

The peculiar organisation of each separate branch or department decides whether all the above should be represented on every Army, Army Corps, or Divisional Staff.

The more centralisation in any department appears desirable—as for instance, in the case of "Communications,"—the more would the department in question be represented on the higher Staffs, whereas, on the other hand, when decentralisation can be allowed to the utmost extent—as for instance in the case of the Chaplain's department—representatives of the department are only found on the Divisional Staffs.

To avoid attaching to every Army, Army Corps, and Divisional Staff, representatives of all the various branches and departments, according to the same patternlike arrangement, but rather to restrict the composition of every Staff to what is only absolutely necessary, is, moreover, in accordance with the principle universally followed throughout the German Service, of reducing all Staffs to the smallest possible size.

There cannot be the slightest doubt that the addition of every individual not absolutely required on a Staff, is in itself an evil. In the first place, it unnecessarily weakens the strength of a regiment from which an officer is taken; and again, it increases the difficulty of providing the Staff with quarters, which tells on the troops that may happen to be quartered in the same place; and these are quite ready enough, as it is, to occasionally look with a certain amount of dislike—though in most cases it is entirely uncalled for—on the *personnel* of the higher Staffs. Finally, it should be remembered—and this is the most weighty argument against the proceeding—that *idleness is at the root of all mischief*. An unnecessarily numerous Staff of officers, etc., cannot always find duty and occupation sufficient for its

mental and physical welfare ; and its superfluous energies soon make themselves felt in every conceivable kind of objectionable way. Experience, at any rate, shows that whenever a Staff is unnecessarily numerous, the ambitious before long take to intrigue, the litigious soon produce general friction, and the vain are never satisfied. These failings, so common to human nature, even if all present, are considerably counteracted, if the persons to whom they apply have plenty of hard work. Besides, the numbers of a Staff being few, there is all the greater choice in the selection of the men who are to fill posts on it. The qualifications of a Staff for war not only require great professional knowledge and acquaintance with service routine, but above all things certainty of character, self-denial, energy, and discretion.

As regards the last-named qualification, newspaper correspondents at once appear to be most undesirable persons as hangers-on of a Staff, for their very business is of a nature the very reverse of discretion rather than that quality itself. But as under the circumstances of modern war, there appears all the greater difficulty of entirely excluding from the composition of a Staff, persons of this kind, though in themselves they may be most estimable men, there seems all the greater necessity for care in their selection. Correspondents once selected, should be strictly bound over, and what is more, carefully watched, so that they may be unable to send off a letter or telegram which has not been submitted to the censorship of an officer of high rank. The distrust that this would seem to imply must not be taken as directed against the intentions of persons of this class, but against their want of discretionary powers as regards professional military judgment. A letter written without the slightest intention of doing any harm, but which really may contain information of a most important nature to the enemy, can now-a-days be extracted from a newspaper, and by means of the electric telegraph, flashed *via* neutral territory straight to the enemy's camp in the shortest possible space of time. *Complete and unfettered* freedom of the press is in fact utterly incompatible with a state of war.

The same line of conduct should be pursued as regards any other kind of individual who has succeeded by some kind of

excuse, but without having any recognised position or calling, in obtaining permission to accompany an army in the field, and then invariably tries to get attached to some Staff or other. The reasons for wishing to accompany the army in the field may indeed be in themselves of a most patriotic and praiseworthy nature. But the presence of such persons only proves a useless burden to the Army, unless, indeed, they have some recognised duty or calling, such as tending the sick and wounded, supplying the Army with medical and other comforts, articles of clothing, etc., etc.

Foreigners who, not being officers of an allied army or country, the friendship of which is beyond all doubt, either from curiosity, pretended personal interest, or for the sake of improving their military knowledge, put in an appearance either with the Staffs or troops, should be at once ordered about their business.

1. THE STAFF OF THE COMMANDER-IN-CHIEF.

(Das Grosse Hauptquartier.)

The Staff of the Commander-in-chief should comprise the various branches representing the supreme direction of military affairs.

It is to be hoped that in any future war that the united army of Germany may be called upon to undertake, the EMPEROR will again be found at its head. His first assistant, as regards the province of military operations, is the *Chief of the General Staff of the Army*. The latter submits to the Emperor the various measures it is desirable to take to meet the requirements of the military situation, asks for his decision, and then by order of the Commander-in-chief, issues them to the Generals commanding Armies in the form of "dispositions," "instructions," "orders," etc. The immediate assistant of the Chief of the General Staff of the Army, and his substitute in case of absence, etc., is the *Quartermaster-General*. The precise duties of the latter have never been clearly defined, and such a step would certainly only appear desirable in the extreme case of the Chief of the General Staff of the Army and the Quartermaster-General not being on the best of terms. And even if this were

the case, there would still be no necessity for any regulation clearly defining the functions of the latter. For without it the Quartermaster-General can always find a completely independent line of occupation, especially in superintending the general business of the General Staff of the Commander-in-chief's head-quarters, thus relieving the Chief of the General Staff of certain details—which, however, have to be settled by authority of a high standing—and enabling the latter to devote his attention more completely to the *higher* duties of his calling.

In the campaign of 1870-71, the Quartermaster-General was in addition called upon to take general charge of the "Communications,"* as there was then no officer filling the post of Inspector-General of Communications, the Intendantur and Telegraph departments being only generally represented, as regards the whole Army, on the Staff of the Commander-in-chief, by the *General Intendant*† and *Director of Military Telegraphs*.‡ These officers were directly referred to the Chief of the General Staff for the necessary information to enable them to act in their respective capacities, without, however, being directly called upon to do so by any hard-and-fast regulation. The judicious selection of the officers in question enabled indeed the want of regulations on such subjects, to be scarcely felt; any defect in this respect was, as soon as perceived, admitted and at once rectified. The General Intendant of the Army in the campaign of 1870-71, who had been a Quartermaster-General of an Army in the war of 1866, and had belonged for many years to the General Staff, was almost daily to be found at the Councils (*Vorträge*) of the General Staff at the Emperor's head-quarters, ready to receive any instructions, and was thus kept informed of the plans and intentions of the Commander-in-chief.

The Director of Military Telegraphs, who had been an officer of

* The *Field Post Office* attached to the head-quarters of the Commander-in-Chief, had indeed on the whole, an independent position, but had to act conformably to the directions of the Quartermaster-General.

† The *Field Commissariat Department* (*Feld-Oberprovinantamt*) was under the General Intendant.

‡ The Director of Military Telegraphs had at his immediate disposal at the Commander-in-chief's head-quarters, the services of a *Field Telegraph Detachment*.

the General Staff, was in a position to hardly require any directions from the Quartermaster-General, to enable him to take the necessary steps to secure telegraphic communication between the head-quarters of the Commander-in-chief and Generals commanding Armies.

Military Railways on which the communications of the Army may be said to mainly depend, were in charge of a Chief of a Section of the General Staff of the Emperor's head-quarters, and a railway official of high rank temporarily attached.

Military operations, together with supply, railways, and telegraphs, were thus all managed at the Commander-in-chief's head-quarters directly or indirectly by the General Staff enlarged for the purpose. The latter had, in addition to 2 Adjutants to carry on duties connected with the interior economy, etc., of the General Staff itself, 3 Chiefs of Sections and 9 officers. The General Staff of the Commander-in-chief's head-quarters was thus divided into three Sections, viz. :—

- (a.) Operations and *Ordre de Bataille* of the German Army.
- (b.) Railways and other communications.
- (c.) Intelligence Department, information on the *Ordre de Bataille* of the enemy's army, negotiations with the enemy, etc., etc.

Of the 9 officers above referred to as belonging to these Sections, a considerable number were invariably absent for several days together on duties of special nature which, in the event of the duty being of a very important nature, entailed the absence of the Chiefs of Sections themselves. In fact, owing to officers being detached for considerable periods at a time, and temporary vacancies, the General Staff of the Emperor's head-quarters may be almost said to have been never complete at any single moment of the campaign. According to its establishment, it comprised 2 Generals, 3 Chiefs of Sections, 2 Adjutants, 3 field officers and 6 captains of the General Staff, 10 topographers, draughtsmen, and employés, 3 clerks,* 4 staff orderlies, 59 train soldiers, and 115 horses.

* Most of the writing, when the documents concerned were in any way important, was actually done by the officers and higher officials themselves. A Field Officer kept the secret journal of operations.

It is not to be supposed that in the next war the General Staff of the Commander-in-chief's head-quarters will take the field in greater numbers than in the last. The officers, etc., employed on it in the war of 1870-71 were fully equal to the task. But its organisation will in all probability be somewhat different, as according to the General Order of the 2nd June, 1872, "on Communications and Railways," the latter are now placed in charge of an Inspector-General under the Chief of the General Staff of the Army. This alteration in organisation, which will be more closely examined further on, was shown to be necessary to enable existing communications, and especially railways, to be turned to the best account by a central directing authority.

The *War Minister*, with certain officers and employés of the War Ministry forming his staff, closely followed the progress of military events as a member of the Commander-in-chief's Staff. As a rule he was present at the Councils of the Chief of the General Staff of the Army, and was thus enabled, by learning the plans and decisions of the Commander-in-chief, to at once give directions to the War Ministry, so as to meet any demands required of his own particular province.

The desire to secure a similar influence on matters connected with the *Artillery* and *Engineers*, caused the Inspectors-General of these branches of the service to be mobilised with their staffs and attached to the Commander-in-chief's head-quarters. Matters actually connected with arms and ammunition as regards the Field Army, were left to the Artillery Authorities of Armies and Army Corps. A similar course was pursued as regards the Engineer Authorities of Armies and Army Corps.

The out-of-door work of the *Adjutantur* of the Emperor's head-quarters was performed by the General and Wing Aides-de-Camp of His Majesty, and mounted *Feldjägers*. The *Military Cabinet* continued to carry out the same duties, though considerably magnified by the circumstances of war, as in peace time, especially as regards promotions, appointments, etc., of officers.

Police and discipline were questions left to the *Commandant* of the Commander-in-chief's head-quarters. For such purposes

he had, in addition to a detachment of *Field Gendarmerie*, a *Head-quarter Guard* of cavalry and infantry. The latter mustered 250 bayonets and 180 sabres. Its first duty was to ensure the safety of the Emperor's person on the march and in quarters. The cavalry in addition, provided mounted orderlies.

The *Judge-Advocate*, *Medical*, and *Chaplain's* Departments had no representatives on the Commander-in-chief's Staff as heads of Army Departments.

Seeing the great powers given to Generals commanding Army Corps in matters of *Military Law*, there appeared, under the circumstances, no necessity for attaching Judge Advocates (*Auditeurs*) to Staffs higher than those of Army Corps. The *Medical Department* was represented in a higher degree by the Surgeons-General (*Generalärzte*) attached to the head-quarters of Armies, but the *Chaplain's Department*, excluding Chaplains belonging to hospitals, was only represented on the Staffs of Divisions by *Divisional* Chaplains. On the other hand the Royal Commissioner and the Military Inspector of the Society for Aid to the Sick and Wounded, were often in the war of 1870-71, immediately working in concert with the General Intendant of the Army, and consequently present at the Commander-in-chief's head-quarters.

2. THE STAFF OF AN ARMY.

The *General Staff* of an Army Command consists of the Chief of the General Staff, the Quartermaster-General, and a certain number of field officers, captains, and lieutenants of the General Staff, according to the size of the Army (see Vol. I, pages 33, 34.) It is not divided into Sections, but the different officers deal with all matters connected with military operations, *Ordre de Bataille*, "Communications," telegraphs, and railways, the Intelligence Department, etc., under the immediate direction of the Chief of the General Staff, or Quartermaster-General, a certain distribution as regards the nature or character of the work, being, however, at the same time found advisable.

The position held by the Quartermaster-General, as regards the Chief of the General Staff, is not laid down by any regulation. The former is subordinate to the latter, and his substitute in case of absence or sickness. The actual relations between the two officers mainly depend on their judicious selection.

The Quartermaster-General is well fitted to act in all matters affecting the General Staff as an Office Chief. He is thus kept constantly informed of everything that goes on, and is in a position to independently deal with all matters of minor importance. But he must pay particular attention to all questions affecting the "Communications" in the broadest sense, and always keep himself in constant communication with the Army Intendant.

The *Adjutantur* comprises a certain number of field officers, captains, and lieutenants, depending on the strength of the Army, its strength being about the same as that of the General Staff belonging to the Staff of the Army. The senior Adjutant acts as Office Chief in all matters affecting the *Adjutantur* (promotions, appointments, recruits and re-mounts, general orders, reports, returns, etc.), thus, to a great extent, assisting to relieve the Chief of the General Staff from a deal of minor details.

The *Artillery* of an Army is represented by a *General Commanding the Artillery*, provided with a special staff. He does not actually hold any military command unless there is a specially formed Army Artillery Reserve (*see* pages 10,11), or he is given some temporary command, such as, for instance, the general direction of the combined artillery of several Army Corps in action. His special duty is the general supervision of the whole artillery *matériel* of the Army and the supply of ammunition to all arms. To meet the first demand of reserve ammunition, the Officers commanding the Field Artillery Brigades have, in the first instance, the supply carried by the ammunition columns of Army Corps. These are replenished from the columns of the Field Ammunition Parks, and these again from the Chief Ammunition Depôts, or, as the case may be, Intermediate Depôts, by direction of the General commanding the Artillery at Army headquarters.

The General commanding the Artillery is directly under the General commanding the Army, and though, perhaps, he cannot be placed under the Chief of the General Staff, owing to his being his senior in rank, it need scarcely be pointed out that unless he be in constant communication, either with the Chief of the General Staff, or Quartermaster-General and authorities in charge of "Communications," he cannot satisfactorily carry out the duties required of him as General commanding the Artillery.

The *Engineers* and *Pioneers* of an Army are represented on the Army Head-quarter Staff by a *General commanding the Engineers*, provided with a special staff. His position and functions are analogous to those of the General commanding the Artillery. His more immediate duty is the supervision of the pioneer trains, and he is available for the general direction of any large operation of a technical nature, such as throwing a bridge over a large river, necessitating the co-operation of the bridge trains of several Army Corps, etc., etc.

The *Judge-Advocate's Department* was not permanently represented during the war of 1870-71 on the Staff of an Army, as questions of military law were left to Generals commanding Army Corps, Divisions, etc., and when it became necessary for any particular purpose, the services of an Army Corps Judge-Advocate could always be procured. It is, however, proposed to attach in future an Army Judge-Advocate to the Staff of an Army.

Military Police duties at Army head-quarters are under the *Commandant*, who has also charge of the *Head-quarter Guard* or *Escort* (1 officer, 1 paymaster, 1 veterinary surgeon, 60 men, and 43 horses). There is in addition, available for such duties, a force of the *Field Gendarmerie Detachment* belonging to the "Inspection of Communications." The *Commandant* at Army head-quarters takes his orders directly from the Chief of the General Staff.

The *Intendantur* of an Army has a head representative in the *Army Intendant*. His chief duties consist in seeing that man and horse are properly supplied with food. To enable him to do this, he takes the necessary directions from the Chief of the General Staff, whose subordinate he is in all matters which he, as a member of the Staff of the Army Command, has to

undertake to see carried out. The most important of these are : making the best use of the resources of the country comprised in the rayon of operations, in the interests of the army, by establishing magazines, requisitioning supplies of food, cloth, leather, etc. ; assessing and collecting war contributions in money, taxes, etc. ; issuing orders and instructions on the issue of supplies to Army Corps, etc., etc. The Intendant occupies as Chief of the Intendantur, an independent position at Army head-quarters as regards the whole system of pay and accounts, as well as in his relations with the Intendant-General of the Army, other Army Intendants, the Intendants of Communications, and of Army Corps. He has at his disposal the necessary *personnel* of Intendantur employés and clerks, and the Field Commissariat Department (*Feld-Hauptproviantamt*) of the Army.

The "*Communications*" (*Etappenwesen*) of the Army is under an *Inspector of Communications*. He is, on the one hand, under the orders of his General, and on the other, under those of the Inspector-General of Communications and Railways. To carry out the functions that are assigned him, of which more will be said further on when dealing with the organisation of the "*Communications of an Army in the Field*," he is provided with a special staff (Chief of the Staff, two Adjutants, Intendant-General, Surgeon, Judge-Advocate, Director of Telegraphs of "*Communications*," Army Post Director, Government Civil employés, Veterinary Surgeon, Paymaster), together with a detachment of Field-Gendarmerie and the troops detailed to guard and protect the lines of communication.

The *Medical* and *Hospital* Departments are under the chief supervision of the Army Surgeon-General. The latter must be in constant communication with the authorities in charge of "*Communications*," with a view to the rapid evacuation from the hospitals of all sick and wounded that can be moved, so as to free the field hospitals that have been established, and enable them to again meet the demands of the army operating against the enemy.

The Society for Aid to the Sick and Wounded was in the campaign of 1870-71, represented at the head-quarters of the different Armies, by delegates having permanent relations with

the Army Intendant, the Army Surgeon-General, and the authorities in charge of "Communications."

Finally there is attached to the head-quarters of every Army, a *Field Post Office*, which in all matters not absolutely of a postal or technical nature, is under the Quartermaster-General of the Army in question.

3. THE STAFF OF AN ARMY CORPS.

The following Branches and Departments are represented on the Staff of an Army Corps :

The *General Staff*, consisting of the Chief of the General Staff, a field officer, and two captains. The Chief of the General Staff is at the same time Chief of the whole Staff. As in peace time, not only are the officers of the General Staff and Adjutantur under his immediate orders, but also, so far as all office duties actually connected with the Army Corps are concerned, the Corps Judge-Advocate, the Field Intendant of the Army Corps, and the Corps Surgeon-General (though belonging in reality to departmental services (*Branchen*), as heads of their respective departments). The officer commanding the Cavalry Guard or Escort, and the officer commanding the detachment of Field Gendarmerie, as well as the Field Postmaster (in charge of the Field Post Office), are under his immediate orders. With the Officers commanding the Artillery or Engineers of the Army Corps, who are immediately under the General's orders, he is again in uninterrupted communication—a circumstance which is equally advantageous to these officers in the interests of their respective arms.

There are no rules or regulations on the distribution of the work or duties of the General Staff. The Chief of the General Staff is responsible for the due performance of all business, and should the General be absent or otherwise prevented from attending to the duty, he has the power to sign himself any orders or instructions of a pressing nature. It is his special duty to see to the proper drafting and preparation of all important "orders," "dispositions," and "instructions," and the issue

of arrangements for the marching and distribution of the troops. He has charge of the Intelligence Department. He should assign the most important duties of his office to the field officer of the General Staff, who, moreover, should be kept sufficiently informed so as to be in a position to take over the duties of his Chief at any moment. The field officer keeps the diary and journal of operations of the Army Corps. The other two officers of the General Staff may be employed at the daily office duties at the direction of the Chief, and assigned special duties, or sent on special expeditions with the sanction of the General commanding.

The *Adjutantur* consists of four Adjutants (two captains and two lieutenants). The senior Adjutant acts as Office Chief in all matters not connected with military operations, thus immediately relieving the Chief of the General Staff of a considerable amount of detail, without, however, actually freeing him from any of the responsibility attached to his post. As a whole the office work of the *Adjutantur* is less than in peace time, and is chiefly confined to matters affecting promotions and appointments, filling the ranks with recruits and remounts, and reports and returns. When secret or confidential orders of operations have to be prepared, Adjutants may assist in drawing them up. They may also be sent as bearers of written orders, etc., of an important nature, which it is deemed inadvisable to entrust to mounted orderlies; when employed for such purposes it may be often desirable to increase their numbers by attaching orderly officers drawn from cavalry regiments. The most important duty they have to perform is transmitting verbal orders in an engagement, which often require to be explained, and even sometimes modified. An Adjutant must on no account take upon himself the responsibility of modifying an order he is given to deliver, but he should be in a position to give such information to the officer to whom he conveys the order, as may enable the latter to decide for himself. This consequently necessitates the employment, as Adjutants, of officers who are observant, capable of forming an opinion, and in every way thoroughly trained soldiers.

The *Intendantur* is represented by a Field Intendant assisted

by an Intendantur employé (*Rath*) who would act as his substitute, and a suitable *personnel* of clerks, accountants, and assistants. The work of the Field Intendantur in war mainly consists in the issue of supplies in money and kind. The different administrative branches comprised are the *Corps Military Chest*, the *Field Chief Commissariat Department*, and the *Field Bakery Department*. The duties of these are laid down by special regulations.

The Intendant, whose duties in the field also form the subject of a special set of regulations, has the exceedingly difficult task, when an army is in motion, of satisfying all the material wants of the troops by daily providing the large quantities of supplies necessary for such a purpose, and forwarding them to the troops according to the constantly changing "dispositions." He can only be in a position to do this effectually if he is constantly kept informed by the Chief of the General Staff of the operations contemplated, and is thus able to meet to the utmost of his ability the wishes of the latter as regards the use of the supply trains (field bakery column, provision columns, park carriage columns).

The *Medical Department*, having at its head the Corps Surgeon-General (with an assistant surgeon and a staff apothecary), comprises general medical arrangements and the employment of the Field Hospitals. In an engagement the advice of the Corps Surgeon may be useful in the question of employing the bearer company attached to the Corps Artillery. As a rule there would be a delegate of the Society for Aid to the Sick and Wounded attached to the Staff of an Army Corps.

The *Judge-Advocate's Department* is represented by the Corps Judge-Advocate, who in war would act as the first legal adviser of the General commanding, as in a great many cases matters that should be judicially investigated by the powers of one class of Army Corps court martial would, owing to the corps and regiments concerned being widely separated, have to be dealt with by another class of court-martial within the jurisdiction of the Army Corps. He gives his legal opinion on verdicts, sentences, and such matters in particular that have to be submitted for confirmation to the General commanding.

The *Artillery* is under the *Officer commanding the Artillery* of the Army Corps (commanding the Field Artillery Brigade), who as such is to be considered as belonging to the command of the Corps. He is responsible for the fighting efficiency of the batteries, and the ammunition columns of the Army Corps, and has further to see to the supply of arms and ammunition for all troops comprised in the Army Corps. In action he may, if the General commanding so direct, personally take general command of all the artillery in action. In addition to and independently of such duties, he actually holds an independent military command under the General commanding the Corps, consisting of the Corps Artillery and ammunition columns, together with the troops actually belonging to these formations. For this purpose he is given, in addition to an Adjutant and a Firemaster Captain, a Field Intendant, a Field Commissariat Department, a Field Post Office, a Divisional Judge-Advocate. and a Field Divisional Chaplain.

The *Engineers* and *Pioneers* of an Army Corps are expected to maintain, in a state of efficiency, the Field Pioneer Companies, as well as the *matériel* of the bridging trains. For such purposes, as well as for others requiring either the direction or assistance of an officer of Engineers, there is attached to the Staff of an Army Corps, an *officer commanding the Engineers* (commanding the Pioneer Battalion) with an Adjutant.

The *Officer commanding the Cavalry Guard or Escort* to whom is attached the *Corps Veterinary Surgeon*, has to see to the quartering and security of the Army Corps head-quarters, has charge of orderly duties, and has disciplinary powers over the train soldiers, etc., belonging to the Staff.

The *Officer commanding the Detachment of Field Gendarmerie* has charge of all police duties in the rayon occupied by the Army Corps, and has to see that his Gendarmerie patrols properly perform their duty within its limits.

The *Field Post Office* of an Army Corps is in charge of a Field Postmaster who, in all matters not of a purely postal character, has to conform to the directions of the Chief of the General Staff.

4. THE STAFF OF A DIVISION.

The Staff of a Division is very much smaller than that of an Army Corps, both as regards staff and departmental services.

The *General Staff* is represented by an officer of the General Staff, usually a field officer, who by regulation is not given the high position of Chief of the General Staff, as the General commanding the Division can and must superintend all details himself. The General Staff officer has in fact now less to do with deliberations connected with the greater operations of war, and should, in this respect, be rather look upon as one whose duty it is to execute rather than design or plan. It is both desirable and necessary in his case, to be in constant contact, in all matters of business, with the heads of all branches and departments represented in the office. He cannot therefore be given the position of a Chief of the General Staff as head of the whole Staff; but if he is thoroughly up to his work and conscientiously performs his duties, he can, nevertheless, gain the confidence of his General to such an extent, as to be practically given the position of first man on the Staff. Such being the case, it cannot be otherwise than advantageous if the officer of the General Staff is the senior officer in military rank on the Staff, and can thus, without any further arrangement, at once take over the duties of office chief.

The Staff of a Division also comprises 2 Adjutants (a captain and a lieutenant), and these may often find themselves called upon to perform duties which are more properly those of the General Staff. Under certain circumstances it may be necessary to add to number by attaching orderly officers.

The departmental services of a Divisional Staff are represented by a Field Intendantur, a Field Commissariat Department, a Field Post-office, a Divisional Surgeon, a Divisional Judge Advocate, and 2 Field Divisional Chaplains.

In a *Cavalry Division* there is 1 Field Divisional Chaplain less.

b. THE ARMY CORPS EQUIPPED FOR THE FIELD.

The general composition of a mobilised Army Corps has practically almost remained unaltered from the well known formation used in the war of 1870-71. The ammunition columns, which during the war still belonged to the Corps Artillery, are now divided into 2 equally strong detachments (each of 3 artillery and 2 small-arm ammunition columns) and placed immediately under the orders of the Officer commanding the Artillery of the Army Corps (*see* pages 19 and 20.)

The Army Corps may be generally taken as composed as follows, irrespective of the higher staffs.

a. Two Infantry Divisions. Each of these consists as a rule of 2 Infantry Brigades (each of 2 regiments, 3 battalions strong), a cavalry regiment (4 squadrons), 1 or 2 companies of field pioneers (there being 3 to an Army Corps), a Divisional bridge train, and a bearer company.

The rifle battalion belonging to the Army Corps is attached to an Infantry Division; should there be 2 belonging to the Army Corps, each Infantry Division would be assigned one, and it would be attached to one of its brigades.

b. The Corps Artillery. This consists of a field artillery regiment of 2 divisions (of 3 batteries each), the horse artillery battery that has not been attached to a Cavalry Division, and a bearer company.

c. The Ammunition Columns (*see* page 19.)

d. The Train Battalion, consisting of 5 provision columns, 6 park carriage columns, the horse depôt, and the field bakery column. The Corps bridge train is attached to the train battalion.

e. The Field Administrative Services, which, as the branches and departments belonging to the higher staffs, have already been referred to, now merely comprise the 12 field hospitals.

It is assumed that the organisation, tactical formations, and usual formations used for fighting are sufficiently well known to need no description in this work. But it nevertheless appears desirable to examine certain questions with a view to drawing

attention to, and giving an idea of, the difference that exists between the *ration strength* of an Army Corps both as regards man and horse, and its *fighting strength* in bayonets, sabres, and guns; for the strength of troops in the field have to be considered under both these headings. Again, the vehicles that according to establishment, accompany the troops, staffs, and departments in the field, and which greatly tend to lengthen the lengths of columns on the march, form of themselves a question of importance.

A mobilised Prussian Army Corps in its normal formation (without a Cavalry Division or division of horse artillery) of 25 battalions of infantry and rifles, 8 squadrons of cavalry, and 14 batteries of field artillery, has a *fighting strength* of 25,000 bayonets, 1,200 sabres, and 84 guns; on the other hand its *ration strength* in round numbers is 36,800 men and 10,250 horses, this being the total amount of rations daily required. Belonging to the Army Corps there are again, in addition, 775 two-horse, 261 four-horse, and 469 six-horse vehicles.

This apparently lengthy train of *impedimenta* is indeed more or less indispensable to enable troops in the field to be accompanied with the various stores and appliances which either as bridging and intrenching tool trains, increase their manœuvring and fighting qualities, or as ammunition and regimental baggage trains, maintain their fighting or military efficiency, or as provision and park carriage columns, provide supplies and rations under circumstances of difficulty, or finally as ambulance or hospital waggons, remove the sick and wounded or provide the necessary stores and appliances for establishing hospitals.

We have consequently to examine the equipment of an Army Corps with bridging and intrenching stores, ammunition, supplies of food, medical and hospital arrangements, and finally with transport to carry the baggage of officers and employés, treasure, official books and documents, reserve clothing, and articles of equipment.

The knowledge of the General Staff officer on such subjects must not be merely a general one; it is most desirable that he should be intimately acquainted with such matters in detail, for

without being so, he can easily bring about mistakes and misunderstandings, when drawing up and issuing orders on the movement and employment of the various trains, columns, etc.

The *Bridge Trains* of a mobilised Army Corps consist of two *Divisional Bridge Trains* and a *Corps Bridge Train*, bearing the number and designation of the Infantry Divisions and Army Corps respectively.

A Divisional Bridge Train consists of :

- 2 six-horse trestle waggons.
- 2 " " pontoon waggons with trestle baulks.
- 4 " " " " " pontoon baulks.
- 1 " " store waggon.
- 1 four-horse waggon.
- 3 " " intrenching tool waggons.
- 1 two-horse baggage waggon.

The Divisional bridge train is commanded by the captain of the pioneer company to which it is attached. The company furnishes a permanent escort of at least 1 non-commissioned officer, 1 lance corporal, and 16 pioneers.

A Corps Bridge Train consists of :

- 2 six-horse trestle waggons.
- 2 " " pontoon waggons with trestle baulks.
- 24 " " " " " pontoon baulks.
- 2 " " store waggons.
- 2 four-horse waggons.
- 1 two-horse baggage waggon.

The Corps bridge train is commanded by a train captain, and is accompanied by a pioneer escort of 2 officers, 7 non-commissioned officers, and 54 pioneers.

Bridging operations would, in the case of a Divisional bridge train, be superintended by the officer in command. In the case of the Corps bridge train, at least 1 company of pioneers would take part in the operation, and the latter would then be superintended by the officer in command of it or an Engineer officer specially detailed for the purpose. The *matériel* of both trains is of precisely the same pattern, so that it can be used together in the same bridge. In the event of such a bridge being thrown, the operation would be in charge of the senior captain

of pioneers present, unless the Officer commanding the Engineers of the Army Corps were present.

A *Divisional Bridge Train* consists of :

4 trestle bays of 5 metres each = 20 metres.

4 pontoon bays of 4.5 metres each = 18 metres.

or 39 metres run of bridge, with 6 pontoons and 4 trestles as supports.

This enables a trestle bridge of 20 metres or a pontoon bridge of 30 metres, to be thrown ; or, using a trestle at either shore-end of the bridge and 5 pontoons in the middle, the longest possible bridge would be 36.5 metres.

The *Corps Bridge Train* consists of :

4 trestle bays of 5 metres each = 20 metres.

24 pontoon „ 4.5 „ = 108 „

or 132.6 metres run of bridge, with 4 trestles and 26 pontoons as supports.

When using, as is usually the case, only 27 bays (2 trestles and 24 pontoons), the total length of the bridge would be 122 metres.

Consequently a mobilised Army Corps is accompanied with sufficient bridging *matériel* to span a river about 200 metres in breadth.

The pontoon bays in the above have been taken at their *normal* or *mean* lengths (or using 4 baulks at 4.5 metres from centre to centre of the pontoons).

This length, still using 4 baulks, may be increased to 4.8 metres, giving in the case of a Corps bridge train, an increased length of 129.9 metres, and in that of a Divisional bridge train, one of 37.2 metres.

Thus the total length of bridge that can be thrown, using the 3 trains belonging to an Army Corps, is 204.3 metres, the bridge being available under ordinary circumstances for all arms.

For very heavy carriages, the bays may have to be shortened, thus diminishing the total length of the bridge.

The shortest bay is 3.3 metres, using 4 baulks, and 2.4 metres, using 6 baulks.

Under exceptionally favourable circumstances, 3 baulks may

be used, increasing the bay to 6 metres, but the bridge thus made, would only be available as a foot bridge for infantry in files (threes) or cavalry in single file.

To cover the bridging of a river, or when the bridging *matériel* is insufficient to throw a bridge from bank to bank, troops may be ferried over a river by *flying bridges* put together and worked with the *matériel* carried by the bridge trains.

Two pontoons coupled to form a ferry boat, can take from 35 to 40 infantry soldiers in marching order, but only from 30 to 35 if the stream is strong, the wind high, or the water rough.

Two pontoons coupled 4·5 metres apart from centre to centre (by 5 or 10 baulks, properly planked over, and fitted with hand-rails) give a space of about 18 square metres available for cavalry or artillery. The raft thus formed can take from 8 to 9 horses with as many men, or a field gun with limber and ammunition, 4 horses, and 8 men.

When the stream is strong, *flying bridges* made to swing across the river by a hawser may be used with advantage. The raft would then be formed of 8 or 13, or even only 5 pontoons. If the number of pontoons available be few, a river of comparatively slight breadth (100 to 120 metres) may be crossed by a raft made of 4 or 5 pontoons put together, running on a cable stretched across.

The capacity of rafts of this nature is as follows :—

A raft of 4 pontoons ; 80 to 90 infantry, or 16 to 18 horses with as many men, or 2 field guns with 8 horses and 16 men.

A raft of 5 pontoons ; 100 to 110 infantry, or 20 to 22 horses with as many men, or 2 field guns with teams and gun detachments complete.

A raft of 8 pontoons ; 160 to 180 men, or 32 to 36 horses with their riders, or 3 field guns with teams and gun detachments complete.

A raft of 13 pontoons ; 260 to 290 infantry, or 52 to 58 horses with their riders, or 5 field guns with teams and gun detachments complete.

The *intrenching tools* carried are as follows:—

Infantry and Cavalry:—

An infantry battalion; 200 small shovels and 40 hatchets, carried by the men, and 54 large shovels, 18 picks, 12 axes, and 27 hatchets, carried by the regimental transport.

A rifle battalion; 200 small shovels and 40 hatchets, carried by the men, and 58 large shovels, 18 picks, 12 axes, and 26 hatchets, carried by the regimental transport.

A cavalry regiment; 108 hatchets carried by the troop horses and 8 large shovels and 6 hatchets, carried by the regimental transport.

Artillery; on the carriages:—

A field or horse artillery battery; 14 axes, 56 hatchets, 18 picks, and 29 spades.

An artillery ammunition column; 4 axes, 52 hatchets, 26 picks, and 48 spades.

A small-arm ammunition column; 2 axes, 48 hatchets, 23 picks, and 23 spades.

Trains; on the carriages:—

A provision column; 32 hatchets, 9 picks, and 10 large shovels.

A park carriage column; 22 hatchets, 22 picks, and 22 large shovels.

A field hospital; 6 hatchets, 2 picks, and 2 large shovels.

A bearer company; 1 axe, 12 hatchets, 1 pick, and 2 large shovels.

A field bakery column; 2 hatchets, 1 pick, and 1 large shovel.

A horse dépôt; 6 hatchets, 2 picks, and 2 large shovels.

Pioneers:—

A company; 18 hatchets, 44 picks, 88 shovels, and 45 axes, carried by the men, and 20 axes, 6 crowbars, 30 picks, 60 shovels, 6 large saws, 6 hand-saws, etc., on the intrenching tool waggons belonging to the company.

Each of the 3 intrenching tool waggons belonging to the Divisional bridge train carries, as regards larger stores, 30 axes,

6 hand-saws, 200 shovels, 2 large saws, 2 cross cut saws, 50 picks, 4 sledge hammers, 4 iron wedges, 8 small and large hammers, etc.

In addition to the tools carried by the artillery, cavalry, and trains, which are chiefly used for purposes of interior economy etc., although the batteries, it is true, can turn such tools to account in making gun emplacements, removing obstacles to the passage of artillery in an engagement, etc., etc., a mobilised Army Corps (25 battalions of infantry and rifles) has therefore for purposes of field fortification—

5,000 small shovels, 2,994 large shovels, 1,728 hatchets, 675 axes, and 972 picks.

The *ammunition* of an Army Corps may be classed as the supply carried in the men's pouches and packs or by the regimental transport, and that carried by the ammunition columns belonging to the Army Corps.

The following is the supply carried by the troops :—

a. Infantry.

a. Carried by non-commissioned officers, 30 rounds per man.

Carried by rank and file, 80 rounds per man.

β. Carried in the battalion ammunition waggons, 19,200 rounds.

γ. Carried on the 4 company baggage waggons, 11,500 rounds.

Giving a total of 61 rounds per non-commissioned officer, and 111 rounds per rank and file.

b. Rifles and Sharpshooters.

a. Carried by non-commissioned officers, 30 rounds per man.

Carried by rank and file, 80 rounds per man.

β. Carried in the 8 company baggage waggons, 38,400 rounds. Giving a total of 69 rounds per non-commissioned officer, and 119 rounds per rank and file.

c. Cavalry.

- a.* Carbine ammunition carried by rank and file, 50 rounds per man.
 - β.* Pistol ammunition carried by non-commissioned officers and rank and file, 10 rounds per man.
- No ammunition is carried by the regimental transport.

d. Artillery.

- 1. Field battery of six 9 centim. guns :—
 - a.* In the limbers, 120 rounds of shell, 60 of shrapnel, and 18 of case.
 - β.* In the ammunition waggons, 440 rounds of shell, 160 of shrapnel, and 16 of case.
- 2. Horse artillery battery of six 8 centim. guns :—
 - a.* In the limbers, 144 rounds of shell, 72 of shrapnel, and 18 of case.
 - β.* In the ammunition waggons, 480 rounds of shell, 192 of shrapnel, and 16 of case.

e. Pioneers.

Carried by non-commissioned officers, 30 rounds per man.
 Carried by rank and file, 30 rounds per man.
 Every company has in addition 250 kilogrammes (550 lbs.) of powder for purposes of demolition.

f. Train.

- a.* Carried by non-commissioned officers and rank and file, armed with carbines, 30 rounds per man.
- β.* Carried by non-commissioned officers and rank and file, armed with pistols, 10 rounds per man.

The four small-arm ammunition columns of an Army Corps carry 1,474,560 rounds of the 1871 pattern,* or taking the Army Corps as 23,448 long and 977 short rifles, an average of 60 rounds per rifle.

The six artillery ammunition waggons carry 9,144 rounds of shell, 3,282 of shrapnel, and 294 of case, giving an average of—

* Known in the German service as M | 71. The rifle, M | 71, long, short, or carbine, is that known in England as the Mauser breechloader, introduced in the year 1871. It is on the bolt system, and fires a solid drawn brass cartridge; calibre .41 inches.

98 rounds of shell, 34 of shrapnel, and 3 of case per 8 centim. gun

87 " 31 " 3 " 9 "

Thus the total number of rounds carried with an Army Corps for such troops as are more immediately intended for actual fighting, would be :—

170 rounds per infantry soldier.

180 " rifleman.

289 " 8 centim. gun.

262 " 9 "

The *supply trains* of an Army Corps consist of the *Field Bakery Column*, the 5 *Provision Columns*, and the 5 *Park Carriage Columns*.

The *Field Bakery Column* has to furnish the troops with bread and biscuit when such articles of food cannot be obtained from other sources (being provided with 78 master and working bakers), and drive and slaughter cattle. It is provided with 2 four-horse bakery and butchery implement or reserve waggons.

A *Provision Column* consists of 30 four-horse provision waggons, 1 four-horse reserve waggon, and 1 six-horse field forge. The ordinary load carried by a provision waggon is about 14 centner ($13\frac{1}{2}$ cwt.)

A *Park Carriage Column* is made up of 80 two-horse waggons, and 2 two-horse squadron baggage waggons. The ordinary load of a waggon is about 20 centner ($19\frac{1}{2}$ cwt.) This circumstance—a heavier load drawn by less draught power—at once shows that park carriage columns cannot be expected to be always able to follow troops everywhere in their movements in the same way as provision columns; they should consequently be always directed, if possible, to travel by good roads.

It is evident that a proper and judicious use of the various means of transport available, is a matter of very great importance. In the first place it is well, as a general rule, to avoid loading waggons with articles of food that relatively to their nourishing properties, are either bulky or easily spoilt, and consequently have to be frequently renewed. Thus, to fill up provision waggons with either fresh meat or bread would, as a rule, appear unadvisable for both these reasons. The former is generally easily procurable during active operations in the

field, and the latter when carried packed in waggons for any distance, is generally unfit for use by the time it reaches the troops. Fresh bread must consequently be baked by the troops themselves, or with the assistance of the field bakery column, and, as in the case of freshly killed meat, carried by the regimental transport.

When troops are stationary for any considerable time, and supplies are regularly issued, every effort should be made to issue fresh bread baked in the immediate vicinity. On all other occasions, provision columns can only supply the troops with biscuit instead of bread, and for a similar reason salt, pork and preserved meat instead of fresh meat, together with rice, pulse, salt, and coffee.

There is now the question whether it appears advisable to load the different waggons each with separate articles of food, or load each wagon with the different kinds of provisions comprised in the soldier's daily ration. The advantages of the latter plan, as regards facilities of actual issue to the troops, are of course at once apparent. But on the other hand, the time taken in loading the waggons in this case is much greater (in the proportion of 3 to 2), and when waggons are separately laden with different stores, the available spaces can often be much better turned to account.

Thus, in the first case, it is well to examine the various ways of packing provisions adopted in the German service. These are as follows :—

Biscuit, in boxes of 75 kilog. (165 lbs.), the box weighing 20 kil. (44 lbs.) in addition.

Salt pork, loose in whole sides.

Preserved meat in boxes of 50 kilog. (110 lbs.), the box weighing 10 kil. (22 lbs.) in addition.

Pulse and rice in sacks of 100 kilog. (220 lbs.)

Salt in sacks of 62 kilog. (136·8 lbs.)

Coffee (roasted) in sacks of 50 kilog. (110 lbs.)

The field ration of the soldier consists of :—

500 gr. (1 lb. 1·63 oz.) of biscuit, or 750 gr. (1 lb. 10·45 oz.) of bread.

170 gr. (5·98 oz.) of salt pork, or 375 gr. (13·206 oz.)

of fresh meat, or about 200 gr. (7·054 oz.) of preserved meat.

125 gr. (4·408 oz.) of rice, or 250 gr. (8·81 oz.) of pease, beans, or lentils.

25 gr. (.881 oz.) of salt.

25 gr. (.881 oz.) of coffee (roasted berries).

Thus the minimum weight of a day's ration would be 500 gr. of biscuit, 170 gr. of salt pork, 125 gr. of rice, 25 gr. of salt, and 25 gr. of coffee, or 845 gr. (1 lb. 13·79 oz.). Excluding fresh bread and meat, but substituting preserved meat for salt pork, and pulse for rice, the weight is increased by 155 gr., or the maximum weight of the ration becomes 1,000 gr. (2 lbs. 3·27 oz.).

The mean between these is about 928 gr. (2 lb. 0·723 oz.), to which would have to be added the approximate extra weight of packing materials of 250 gr., giving the total mean weight of the daily ration as 1,175 gr. (2 lbs. 9·44 oz.).

A provision column with its ordinary load of 25,500 kilog. (848·5 cwt.), can thus furnish about 22,000 rations, *i.e.*, nearly two-thirds of the daily requirements of an Army Corps, taking the latter at its fixed establishment.

The following results have been obtained by practical experiments in loading waggons.

a. A provision waggon laden with one kind of store only, can take:—

14 sacks of salt, or 868 kilog., or 34,720 rations.				
or	9	"	rice	" 900 " " 7,200 "
"	9	"	pulse	" 900 " " 3,600 "
"	850	kilog.	of salt pork, in sides	" 5,000 "
"	700	"	preserved meat	
	with 90 kilog. of packing materials " 3,500 "			
"	16	sacks	of coffee, or 800 kilog.,	" 32,000 "
"	9	boxes	of biscuit	" 650 " " 1,350 "

Consequently the waggons of a provision column would have to be laden somewhat as follows:—

1	waggon	with salt	or	34,720	rations.
1	"	"	coffee	"	32,000 "

2 waggons with rice	or	14,400 rations.
3 " " pulse	"	10,800 "
2 " " salt pork	"	10,000 "
4 " " preserved meat	"	14,500 "
17 " " biscuit	"	22,950 "

A provision column thus laden can carry about 23,000 complete rations, leaving a considerable excess of salt and coffee, and as these indispensable articles are precisely those which most often fail, this is very desirable. If in addition to the above stores, bread rations for some 2,000 men can be provided from other sources, the column may be considered as carrying sufficient provisions for about 25,000 men.

From the above calculations and the fact that an Army Corps is very rarely in the field up to its fixed established strength, it may be assumed that the five provision columns can carry sufficient supplies for about four days' rations.

b. A provision waggon laden with the various articles of food comprised in the soldier's ration,

or 1 sack of salt, or 62 kilog.,	or 2,480 rations.
" 1 " rice " 50 "	" 800 "
" 5 boxes of biscuit or 375 kilog.,	
with 50 kilog.-weight of boxes,	" 750 "
" 3 boxes of preserved meat, or 150	
kilog. with 30 kilog.-weight of boxes,	" 750 "
" 1 sack of coffee, or 50 kilog.,	" 2,000 "

giving thus, with a total weight of 867 kilog. (17 cwt. 0 qr. 9 lbs.), 750 complete rations and a considerable excess of salt and coffee,

or with

2 sacks of pulse or 200 kilog.,	or 800 rations,
and 127.5 kilog. of salt pork,	" 750 "

a total weight of 914.5 kilog. (18 cwt. 0 qr. 2.2 lbs.), and a like result as regards number of complete rations.

A provision column would, according to this arrangement, carry 22,500 complete rations, with a surplus of about 52,000 rations of salt and 37,500 rations of coffee.

The approximately similar results obtained by both systems, though it is obtained in system b by a slight increase in the

weight carried, show that when first loading the provision columns, it is well to select from two to three of these, complete them with stores according to plan *b*, which is so much better suited for direct issue to the troops, and, as far as is practicable, retain them with the latter during the course of operations. With the very limited means of transport at the disposal of the troops, it is no small advantage when the latter are being rationed from the provision columns, to have the complete rations brought direct to the troops and issued to them on the spot, instead of causing the troops to repair to the provision columns and fetch for themselves from the various waggons laden with different articles of food, the quantities they require.

Experiments made in the loading of the waggons intended to form the park carriage columns, have shown that one of these waggons can take :—

16 sacks of salt, or	992 kilog.,	or 39,680 rations.
or 10 " rice	" 1,000 "	" 8,000 "
" 10 " pulse	" 1,000 "	" 4,000 "
" salt pork in sides	" 1,000 "	" 5,882 "
" 17 boxes of preserved meat, or	850 "	850 "
kilog., with 170 kilog.-weight		
of boxes, " " "	" 4,250 "	
" 8 boxes of biscuit, or 600 kilog.,		
with 160 kilog.-weight of boxes*	" 1,200 "	
" 20 sacks of coffee, or 1,000 kilog.,	" 40,000 "	

If a waggon be packed with all the articles of food comprised in the soldiers' ration, it can take 800 complete rations, together with a corresponding surplus of salt and coffee.

Oats are carried in sacks of 75 kilog. ; a provision waggon can take 11 of these, and a waggon of a park carriage column 13. The daily heavy field ration is 5,625 gr. (12 lbs. 6 oz.), and the light, 5 kilog. (11 lbs.). As the number of horses entitled to the light ration only, is comparatively small, the mean daily ration may be taken as 5.5 kilog. (12 lbs. 2 oz.). A provision waggon can consequently take 150, and a park carriage waggon 177

* Space only enables 8 boxes to be carried, though the ordinary load as regards weight would be from 10 to 11.

rations. The 5 park carriage columns can therefore take 71,000 rations, or about 7 days' rations for an Army Corps.

The *medical arrangements* of an Army Corps comprise the *three Bearer Companies* (*Sanitäts detachments*) and the *twelve Field Hospitals*.

A *Bearer Company* consists of 7 surgeons, 1 field apothecary, 8 hospital assistants, 8 military sick attendants, and 191 bearers (non-commissioned officers and privates). It is provided with 8 two-horse ambulance waggons, 2 two-horse hospital store waggons, and 2 two-horse baggage waggons.

This organisation enables it to be divided into two sections of nearly equal strength, and thus enables it to be more extensively employed.

The duties of a bearer company on the field of battle are to establish a chief dressing station* with the surgeons and their assistants, and with the bearers† under the orders of the officer commanding the company (a captain of the train), search for and convey the wounded to the dressing station, where their injuries can be attended to.

Orders as regards movements of the companies, establishment of dressing stations, removal of the latter from one place to another, or again, whether one or both sections are to be used, are given to the officer commanding the company by the General commanding the Division or Army Corps, who on such occasions would, as a rule, make the Divisional or Army Corps Surgeon his mouthpiece. The surgeons with the hospital assistants and sick attendants have, in the first place, to prepare the wounded for further removal to the field hospitals, and therefore, after allowing them the necessary rest, and strengthening them by medical appliances and restoratives, have to examine their wounds and apply such bandaging and dressing as is necessary before their removal, or perform minor operations, or such large operations as cannot be postponed. For such duties the medical

* In minor engagements, temporary dressing stations would only be established as required by the regimental surgeons, assistants, &c.

† There are also bearers belonging to corps and regiments, and these would, in minor engagements, be employed only; they may, however, also be used to assist the bearers belonging to the bearer company.

personnel would be augmented partly by regimental surgeons whose temporary dressing places were no longer used, and partly by surgeons sent forward from such field hospital as orders have been given to establish. These would, after affording such assistance as was in their power, return to their respective field hospitals with such convoys of wounded as might be directed on the latter.

The wounded that are to be received and treated in field hospitals, are conveyed thither in the ambulance waggons of the bearer companies (provided these can be spared from the battle field) and in specially selected vehicles filled with straw, provided by the Intendantur. In addition to such means of transport, the troops taking part in the action hand over to the bearer companies such country carts or auxiliary transport as they may be accompanied by.

The bearer companies, after the wounded have been removed, and such as are able to walk or bear further travelling without danger or risk, have been handed over to the nearest Commandant of "Communications," cease their labours on the scene of the conflict, and hold themselves in readiness to move off on the receipt of orders, so as to follow their respective Divisions, and be ready for the next occasion. Their duties as regards care of the wounded are therefore merely of a temporary or transitory nature; the further treatment of the wounded takes place in the field hospitals, and in hospitals more or less permanent, or which do not follow the movements of the Army in the field.

A *Field Hospital* comprises the following medical *personnel*: 1 head-surgeon, 4 surgeons, 1 field apothecary, 9 hospital assistants, and 12 military sick attendants. It is accompanied by 3 four-horse waggons for medical stores and appliances, 1 two-horse baggage waggon, and 2 two-horse hospital waggons. A field hospital can accommodate 200 sick or wounded, and can be divided into two sections.

The employment of the field hospitals, or their attachment from time to time to the Divisions, takes place in accordance with the directions of the General commanding the Army Corps. The latter, or as the case may be, the General commanding the

Division, gives the order for bringing forward the field hospitals near the scene of the engagement, or for their establishment. In the field hospitals that are established, the sick and wounded are treated and cared for independently of the movements of the Army. Should the latter be obliged to retire, all the horsed transport as well as all *personnel* and *matériel* not absolutely required for the immediate wants of the patients, would be handed over to the nearest bearer company.

When the Army is either stationary or advancing, the surgeon in medical charge of a field hospital must do his utmost to get the latter ready again for service with the troops in the field. He must consequently endeavour to diminish as far as possible the number of sick and wounded under treatment (by evacuating as many as are able to travel, on hospitals established further in rear), and enable the field hospital to be relieved of its work (by replacing it with *personnel* and *matériel* drawn from the authorities in charge of "Communications"). If the field hospital cannot be thus entirely relieved of its work, one section may be freed at a time. When the field hospital is relieved, the hospital established in its stead takes the name of "Standing War Hospital," and is then under the authorities in charge of "Communications." The field hospital then rejoins the Army Corps to which it belongs with the least possible delay.

The *Baggage Trains* of Staffs, corps, and regiments are composed as follows :—

Staff of an Army Corps.

- 1 four-horse waggon for the General in Command.
- 1 two " " " "
- 1 four " " Chief of the General Staff.
- 1 two " waggon for the Officer commanding the
Engineers.
- 1 two-horse squadron baggage waggon.

Total.. 5 carriages.

Departments belonging to the Army Corps Staff.

Intendantur	{	1 two-horse waggon for the Field Intendant.	
		1	Intendantur (<i>Rath.</i>)
		1 four-horse office waggon.	
Military chest, 3 four-horse treasure waggons.			
Field Chief Commissariat Department, 1 two-horse office waggon.			
Field Bakery Department, 1 two-horse office waggon.			
Corps Surgeon General,	1	" "	waggon.
" Judge-Advocate,	1	" "	"
Field Post Office	{	3	post-office waggons.
		1	store and office waggon.
<hr/>			
Total	..	14	carriages.

Staff of an Infantry Division.

1 four-horse waggon for the General in Command.

Departments belonging to the Divisional Staff.

Intendantur	{	1 two-horse waggon for the Chief of the Divisional Intendantur.	
		1 two-horse office waggon.	
Field Commissariat Department, 1 two-horse office waggon.			
Divisional Judge-Advocate, 1 two-horse waggon.			
Two Divisional Chaplains	2	„	waggons.
Field Post-office	{	2 two-horse post-office waggons.	
		1 „ „ store and office waggon.	
Total	..	9	carriages.

Staff of an Infantry Brigade.

1 two-horse waggon for the General in Command.

Staff of the Officer commanding the Artillery.

1 two-horse waggon for the Officer commanding the Brigade.

Departments belonging to the Artillery Staff.

Intendantur	{	1 two-horse waggon for the Chief of the Intendantur.
		1 two-horse office waggon.
Field Commissariat Department,		1 two-horse office waggon.
Divisional Judge-Advocate,		1 two-horse waggon.
„ Chaplain,		1 two-horse waggon.
Field Post-office	{	2 two-horse post-office waggons.
		1 „ „ store and office waggon.
<hr/>		
Total ..		8 carriages.

Staff of an Infantry Regiment.

1 two-horse regimental staff waggon.

An Infantry Battalion.

	1 six-horse small-arm ammunition waggon.
	1 four „ battalion baggage waggon.
	4 two „ company „ waggons.
	1 „ „ hospital store waggon.
	2 „ „ canteen waggons.
<hr/>	
Total. .	9 carriages.

A Rifle Battalion.

	1 two-horse battalion staff waggon.
	1 „ „ hospital store waggon.
	8 „ „ company baggage waggons.
	2 „ „ canteen waggons
<hr/>	
Total. .	12 carriages.

A Cavalry Regiment.

	1 four-horse regimental staff waggon.
	4 two „ squadron baggage waggons.
	1 „ „ hospital store waggon.
	2 „ „ canteen waggons.
<hr/>	
Total. .	8 carriages.

Staff of a Field Artillery Regiment.

1 two-horse waggon for the officer commanding the
regiment.

Staff of an Artillery Division (Abtheilung).

1 two-horse baggage waggon.
2 „ canteen waggons.

Total. . 3 carriages.

A Battery of Field or Horse Artillery.

(In addition to 6 six-horse gun carriages and limbers.)

8 six-horse ammunition waggons.
3 „ „ store waggons.
1 „ „ field forge.

Total. . 12 carriages.

Staff of a Division of Ammunition Columns.

1 two-horse waggon for the officer in command.
1 „ „ canteen waggon.

Total. . 2 carriages.

An Artillery Ammunition Column.

(In addition to 20 six-horse ammunition waggons.)

1 six-horse store waggon.
1 „ „ field forge.
3 four „ spare gun carriages with limbers.
1 two „ baggage waggon.

Total. . 6 carriages.

A Small-Arm Ammunition Column.

(In addition to 21 six-horse ammunition waggons.)

- 1 six-horse store waggon.
- 1 " " field forge.
- 1 two " baggage waggon.

Total. . 3 carriages.

A Pioneer Company.

- 1 four-horse intrenching tool and store waggon.
- 1 " " powder waggon.
- 1 " " baggage "
- 1 " " canteen "

Total. . 4 carriages.

A Divisional Bridge Train.(In addition to 8 six-horse pontoon and trestle waggons,
and 3 four-horse intrenching tool and store waggons.)

- 1 six-horse tool and store waggon.
- 1 four " waggon.
- 1 two " baggage waggon.

Total. . 3 carriages.

Staff of a Train Battalion.

- 1 two-horse regimental staff waggon.
- 4 " " canteen waggons.

Total. . 5 carriages.

Corps Bridge Train.

(In addition to 28 six-horse pontoon, etc., waggons.)

- 2 six-horse tool and store waggons.
- 2 four " waggons.
- 1 two " baggage waggon.

Total. . 5 carriages.

A Provision Column.

(In addition to 30 four-horse provision waggons.)

1 four-horse reserve waggon.

1 six „ field forge.

 Total. . 2 carriages.
A Park Carriage Column.

(In addition to 80 two-horse waggons.)

2 two-horse squadron baggage waggons.

Field Bakery Column.

2 four-horse bakery and butchery implement waggons.

Horse Depôt.

2 two-horse squadron baggage waggons.

A Bearer Company.

(In addition to 10 two-horse ambulance and hospital store waggons.)

2 two-horse baggage waggons.

1 „ „ canteen „

 Total. . 3 carriages.
A Field Hospital.(In addition to 3 four-horse general store waggons,
and 2 two-horse hospital store waggons.)

1 two-horse baggage waggon.

C. THE INDEPENDENT DIVISION.

1. THE CAVALRY DIVISION.

The number and formation of Cavalry Divisions are given in the *Ordre de Bataille* of the Active Army. An attempt has already been made (*see* pages 7—9) to show the formation that it appears most desirable to adopt.

The next step is to see how, and to what extent, the Division should be provided with administrative departments, and the necessary remarks on this question have been given at page 49.

It would be useless, and consequently wrong, to attach columns and trains, as these being incapable of rapid movement, would be unable to accompany a Cavalry Division, so as to be of any real use. Besides, the duties which Cavalry Divisions are generally called upon to perform, are such as would generally appear to enable the usual columns and trains to be dispensed with. If they are scouting *in advance* of the army, they are, as a rule, far better able to subsist on the country, than the troops they precede.

Duties of this kind again do not, as a rule, entail very severe losses, and the surgeons, etc., belonging to regiments are generally quite able to meet all ordinary medical requirements. Cavalry Divisions may be only said to suffer heavy losses in general actions; but they then can have recourse to the more perfectly organised medical arrangements belonging to Army Corps, and similarly, when closely allied with other troops for short periods preceding general actions, their wants as regards commissariat may be met by the supply trains accompanying the latter.

As regards small-arm ammunition of which only a comparatively small supply is carried by the trooper, but which might occasionally be expended in somewhat large quantities when cavalry are acting by themselves, two small-arm ammunition waggons are, with a view to prevent accidents, attached to each Cavalry Division, carrying together 30,720 rounds of carbine ammunition. For a Cavalry Division composed of 2 heavy and 4 light regiments, this provides an additional supply of 15 rounds *per* trooper for the light cavalry regiments.

These small-arm ammunition waggons are by regulation permanently attached to the artillery of the Division.

2. THE REINFORCED INFANTRY DIVISION.

The extent to which an Infantry Division would be reinforced by cavalry and artillery and provided with columns and trains, depends on the particular object for which the Division

in question is detached, or as is more often the case, formed, to act by itself.

If the Division is to act as a distinct unit in carrying out the operations of an Army as one of the independent fractions forming the latter, it should, as a matter of choice, be reinforced by an Artillery division (or with its share of the Corps Artillery if belonging to an Army Corps), and with columns, trains, and administrative services to about half the extent of a mobilised Army Corps. Whether an extra force of cavalry be desirable, is a question that must depend on the nature of the operations the Division is to perform, the distance at which it is to manœuvre from the main body of the Army, and the character of the country it is to act in. Country of a decidedly mountainous character would consequently require a far less proportion of cavalry than if it were flat.

Operations on a minor scale again do not require the Division to be strong in the special arms and trains. For instance, a Division detailed to hold a province of the enemy's country already occupied, and guard the lines of communication running through it, would hardly require an artillery division of 4 batteries. In such a case it would, as a rule, be merely a question of occupying the country by holding it with small detached garrisons of infantry and cavalry, entailing the splitting up into small bodies of these arms, and requiring but little or no artillery.

Similarly, it would be unnecessary under such circumstances to provide the Division with strong columns and trains, as, being immediately employed in connection with the "Communications," its wants can be immediately supplied by the authorities in charge of the latter.

Divisions detailed to invest fortified places should, to enable them to be efficient, be as a rule, reinforced by artillery, and more especially by cavalry. But from the fact of their duties being of a stationary character, they can dispense with a large proportion of the usual columns and trains. Ammunition columns and bearer companies, as well as *personnel* and *matériel* for the establishment of hospitals should, however, not be wanting. If the investment becomes eventually a siege,

the addition of pioneers and siege artillery in proportion to the size and strength of the fortress, becomes of course indispensable.

These examples are sufficient to show the various conditions that must be borne in mind when a Division has either to be detached or formed to act independently under different circumstances. To meet the different cases that may occur in the course of a campaign, and which are so liable to vary in character, it would be well when forming an independent Division at the outset, to give it a certain power of operating by itself, by adding to each infantry brigade—a cavalry regiment, an artillery division, a pioneer company, a bearer company, and some ammunition columns, and at any rate, a provision column and some hospitals, or additions somewhat of this strength. Any further increase in the strength of the Division would then be made as circumstances require.

d. SPECIAL FORMATIONS.

There are yet some special formations which it appears desirable to describe as belonging to the Army in the field, and intended to meet various requirements in connection with the operations of war or certain incidents in the course of a campaign, but which do not belong to any particular Army Corps.

These may be described as *Field Telegraphs*, the *Field Ammunition Park*, the *formations belonging to the "Communications (Etappen formationen)"*, the *Field Railway formations*, and the *Siege Parks*.

The latter, distinguished as Artillery and Engineer parks are formed (in each particular case) to meet the requirements of the situation, though this is done in accordance with certain fixed rules and principles laid down as a guide to be followed on such occasions. Owing to the essentially technical character of the formations in question, to describe them in detail would be quite out of place here, as an officer of the General Staff would never, unless indeed in cases where every assistance could be supplied him by officers of the Artillery and Engineers,

have anything to say to siege parks of any kind. The only question in connection with these with which he might possibly have to deal, is that concerning arrangements for their transport by rail, but there are special instructions on this subject, and these would then act as his guide.

The *Field Ammunition Park* consists of 8 columns, and these are placed, as circumstances require, under the orders of the Generals commanding Armies, or the Generals commanding the Artillery of the latter. The columns are essentially organised for railway transport, but could, if provided with horsed ammunition waggons, convey stores of ammunition from the military railway *termini* to points where the ammunition columns of Army Corps could be filled up, and consequently thus establish intermediate ammunition depôts.

The Field Ammunition Park is itself supplied from 3 *Chief Ammunition Depôts*. These are mobilised at home in fortified places to suit the requirements of the war, and should, if possible, not be moved thence. They are placed under the orders of the Inspector-General of Communications and Railways.

The latter is given to secure the "*Communications of the forces in the field*" (*das Etappenwesen*), as many *Inspections* of "*Communications*" as there are Armies, or Army Corps formed to act independently. Troops and Commandants of "*Communications*" (*Etappen Kommandanturen*) are assigned to the different "*Inspections*" according to circumstances. As regards special "*Communication*" *formations*, there are in each *Inspection* of "*Communications*:"—a Reserve Bakery Column, a Reserve Hospital Depôt, a Sick and Wounded Transport Commission, a Director of "*Communication*" Telegraphs, with a Telegraph *personnel* and Train Column, a Post Horse and Carriage Depôt, and as many Directors of Field Hospitals, "*Communication*" Hospital *personnel*, "*Communication*" Park Carriage Columns and Field Gendarmerie detachments, as there are Army Corps in the Army to which it belongs.

For railway purposes, there is a *Director of Military Railways* acting under the orders of the Inspector-General of Communications and Railways, who has entire control over the whole military railway system of the theatre of war, as well as the use for

military purposes, of the railways at home. He is given military railway directors (*Directionen*), the Railway Section of the Great General Staff at home replacing the Great General Staff in the field (*stellvertretender Grosser Generalstab*), line and station commandants, as well as detachments formed from the railway regiment. These are made up of artificer and traffic companies.

Further explanations on the use of the formations necessary to ensure the supply of ammunition and secure the communications and railway system of an army in the field are, so far as they may be considered advisable or necessary, reserved for a further chapter. It only remains then to explain somewhat in detail the organisation of *Field Telegraphs*.

Provision is made for the formation of 7 *Field Telegraph Detachments*, and 5 *Reserve Field Telegraph Detachments*, exclusive of Bavaria.

The former immediately accompany the Army Corps, etc., operating in the field, and, following the movements of these, are intended to keep up telegraphic communication between the head-quarters of Armies and other independent commands and the head-quarters of the Commander-in-chief, or between several Armies or Army Corps carrying on active operations, and connect such telegraphic communications with the State Telegraphs.

The waggons used for the transport of telegraphic stores, apparatus, etc., that accompany these in the field can be moved rapidly *alongside* a road, so that telegraphic communication may be established with the utmost rapidity. The reserve field telegraph detachments are intended to follow, with their more capacious and consequently more heavily laden waggons, on the regularly made roads of the country, the lighter equipped field telegraph detachments; they are intended to first of all supply these with *personnel* and *matériel*, and, when required, work in connection with them. They therefore replace the *matériel* that has been set up by the field telegraph detachments working in front, and for this purpose take down the lines established in rear; or they may, according to circumstances, be employed as field telegraph detachments, mutually relieving each other.

In addition to this, they can restore long lines of permanent telegraph that have been interrupted or destroyed.

As a rule, there are attached to the head-quarters of the Commander-in-chief, one field and one reserve field telegraph detachments, and to each Army, one or two field and one reserve field telegraph detachments. The *Director of "Communication" Telegraphs* attached to each Army, sees to the permanent establishment of the State telegraph lines reaching to the army operating in the field, and to the working of such stations as are necessary to connect the field telegraphs with these in rear. Similarly the "Communication" telegraphs have to replenish the stores, apparatus, etc., expended by the field and reserve field telegraph detachments.

The *Director of Military Telegraphs* attached to the Commander-in-chief's head-quarters has charge of all telegraphs in the theatre of war; as regards field telegraphs, he is immediately under the Chief of the General Staff of the Army, and in matters concerning "Communication" telegraphs, he acts in concert with the Inspector-General of Communications. To the actual working of the telegraph detachments belonging to the different armies, he has nothing to say, except through the Generals commanding the Armies in question, but the telegraph detachments belonging to the Commander-in-chief's head-quarters are under his immediate orders. He maintains close relations with the Director-General of Telegraphs, so that connection between the field and "Communication" telegraphs and the State Telegraphs, be never for a moment lost.

A *Field Telegraph Detachment* consists of a telegraph detachment and a train column.

The former comprises 3 Engineer officers, 7 employés (*obere Beamte*) of the State Telegraphs, 90 pioneers (non-commissioned officers and rank and file), and 4 telegraph foremen artificers.

The train column consists of 6 six-horse store waggons, 5 two-horse station and employé conveyance waggons, and 2 four-horse waggons.

The stores carried are $22\frac{1}{2}$ kilometres (15 miles 550 yards) of plain copper wire, $11\frac{1}{2}$ kilometres (7 miles, 1,155 yards) of insulated copper wire, 1,200 metres (1,311 yards) of light steel

wire, 315 metres (344 yards) of insulated cable for crossing rivers, together with 10 Morse recording instruments and 660 poles.

The rate at which an overhead line can be laid with plain wire is from 20 to 30 minutes per kilometre (or an English mile in about from 32 to 48 minutes).

A *Reserve Field Telegraph Detachment* is similarly composed. The telegraph detachment has, however, 12 employés of the State Telegraphs, and 8 foremen artificers. The train column comprises 8 six-horse store waggons, 7 two-horse employé conveyance waggons, and 1 four-horse waggon.

The stores carried are 33½ kilometres (22 miles) of plain copper wire, 15 kilometres (9 miles, 555 yards) of insulated copper wire, 75 kilometres (46½ miles) of light steel wire, 315 kilometres (344 yards) of insulated cable for crossing rivers, 14 Morse recording instruments, and 1,296 poles.

A "*Communication*" *Telegraph Direction* comprises 33 employés of the State Telegraphs, 10 foremen artificers, 30 artificers, 32 Morse recording instruments, stores and *matériel* for laying 90 kilometres (56½ miles) of line, and sufficient tools and stores for laying three lines at a time (*Baukolonnen*.) Both *personnel* and *matériel* are supplied, as required, from the State Telegraphs.

B. THE GARRISON ARMY.

The Garrison Army comprises that portion of the army which on mobilisation taking place, for the time remains at home. It may be divided into the higher military administrative authorities, the military commands and administrative authorities taking the place of those that have left for the seat of war, the *dépôt* (*Ersatz*) troops, the garrison troops, and the *Landsturm* troops.

To give in detail the various formations, etc., comprised in the above, would be foreign to the object of this work, as with the exception of the General Staff taking the place of the General Staff that has proceeded on active service (*stellvertretender Generalstab*), which has to carry on the business of the Great General Staff at home, and any General *Gouvernements* that might be established

comprising each the districts of several Army Corps together, there would seem to be no employment for officers of the General Staff.

The composition and use that might be made of the Garrison Army, with the question of bringing it forward for war purposes, depend so much on the course taken by circumstances in a war, and form so very much of themselves a subject for spontaneous energy as regards organisation, that but very little can be said of such things in anticipation. The preliminary formation of the Garrison Army is moreover clearly laid down and defined by the regulations existing on the subject in peace, and these divide the territory of the Empire for the purpose into Army Corps and Brigade Districts. The military authorities again, retain in the main the same organisation that exists in time of peace, inasmuch as military commanders and administrative authorities immediately take the place and carry on the duties of those that have proceeded to the seat of war. We can only then refer the reader to what has been said on the subject in Chapter III. Vol. I.

CHAPTER III.

OFFICE DUTIES IN THE FIELD.

**α. GENERAL ARRANGEMENTS AND THE TRANSMISSION
OF ORDERS.**

OFFICE work with an army in the field should be restricted to what is absolutely indispensable, and confined to the bureaux of the higher Staffs.

To expect troops who have often to sleep in the open to carry on an extensive system of office work, is simply impossible. They are consequently only called upon to keep accounts showing the expenditure of supplies either in kind or money, furnish receipts for ammunition, etc., field states, returns showing men transferred either to the reserve or sent to hospital, and to forward reports on actions fought, together with the necessary returns (lists of casualties, ammunition expended, etc.)

Orders for actual operations before the enemy are, as a rule, given verbally, the corps or regiment in question being assembled and formed up for the purpose in a comparatively narrow space. Exception to this rule is only made when, owing to circumstances of time and place, the regiment, etc., in question is cantoned or quartered over a large extent of country, and is consequently much scattered in detachments. But in the case of the higher Staffs the latter is the rule, and not the exception, both as regards the transmission of orders and other office work. The former plan may be practicable, perhaps, in the case of the brigade which, taking advantage of the accommodation offered by a neighbouring village, may sometimes practically bivouack in a body, but in the case of the Division, orders must be invariably given in writing,—a proceeding which calls for greater clearness and accuracy, and consequently has the great advantage over verbal orders, of being more precise in character.

It need scarcely be said, that during an engagement, a Divisional Commander gives by far the greater part of his orders verbally, either himself or through his Staff and Orderly Officers. But in the case of a higher command, the troops belonging to which cover a larger extent of ground when engaged with the enemy, the Generals commanding will generally find it necessary to issue their orders written in a condensed form. Any misunderstanding that might arise in the transmission of verbal orders, is more quickly seen and remedied, on the comparatively small extent of ground occupied by a Division when engaged with the enemy, than on the more extensive battle-field occupied by an Army Corps or an Army. A large force consequently calls for greater care and precision in the transmission of orders, and this is best ensured by always giving them in writing.

It may be well to state that, as all the office work which we are obliged to carry on in time of peace at home (in connection with the annually recurring periods of training in the army, the continual alteration and improvement taking place in the various branches of military organisation, the strictest system of military administration, etc., etc.), is unknown in time of war with an army in the field, either at its head-quarters or other commands, but rather remains behind at home to be carried on in connection with the reserves and home army, by the officers and officials who have taken the places of those that have left on active service, the amount of office work that has to be carried on by the higher Staffs in the field is, taken as a whole, much more limited. On the other hand, however, an entirely new and different subject as regards office work, requiring the greatest care and attention, has to be undertaken with an army in the field, and this is in connection with *Military Operations*, with which we now propose to deal as a special subject.

In the first place it is unnecessary to dwell on its immense importance any loss of time in the transmission of orders, any want of clearness, any errors in their meaning, or the fact of their falling into the hands or coming to the knowledge of unauthorised persons, may have the most disastrous consequences. The fact, moreover, that in nearly every case all loss of time

must be avoided, and the means of conveying orders are often uncertain and exposed to danger, considerably adds to the difficulty. We have consequently first to deal with *clearness and precision in issuing orders*, and next with *precautions against their contents coming to the knowledge of unauthorised persons*.

As regards the latter question, the greatest discretion is in the first place, of the highest importance. To be discreet, reticent, and in every way thoroughly reliable, are then indispensable qualifications of the officers entrusted with drawing up and transmitting orders for military operations.

At the head-quarters of an Army, where there can be no lack of officers, it is not advisable when many copies of the same order or set of orders have to be written, to employ persons of inferior rank for the purpose. With a lithographic or some such kind of printing press, the original can be written with prepared ink by an officer, the necessary number of copies struck off, and the stone or plate then and there cleaned under his supervision.

Orders of minor importance may be written or printed by clerks.

Next there is the *Confidential Journal of Operations* in which all telegrams, despatches, reports, orders, etc., sent out or received, and relating in any way to military operations, have to be entered. The entry of a document, whether despatched or received, should contain the hour and minute, as well as the date, of despatch or receipt, and also the name of the person conveying (or as the case may be, forwarding) it to some further destination. In the case of telegrams, it is sufficient to give the number, etc., of the field telegraph detachment, if it be on the spot. The Confidential Journal of Operations which supplies the first materials for drawing up an official account of the war, should be placed in charge of an officer selected according to the importance of the work, and in many cases, for reasons owing to especial discretion being necessary. It remains with the officer in charge to decide when the documents, etc., received, or the copies of documents, etc., despatched, should be sent to the War Ministry. Until the time arrives for their being disposed

of in this way, they are kept in portfolios under lock and key.

It may often happen, however, in spite of every precaution, that some small note or document may now and then be left lying in the office, the contents of which might, if in the hands of the wrong persons, be of use in enabling the latter to form certain conclusions. For this reason, as well as to ensure the security of documents, etc., under lock and key, sentries or orderlies furnished by the staff escort should be placed over the office entrances,* to stop all unauthorised persons from entering, and if necessary, refer them to the *officer on duty*.† The latter is on duty for 12 hours at a time, and is relieved at about 6 o'clock in the morning and evening. He must, while on duty, never leave the office or its precincts, he opens all letters and documents received in the night, and uses his own discretion as to whether the case is sufficiently important for him to awake the Chief of the Section to which it refers, or as the case may be, the Chief of the Staff himself. If he should have any doubt in the matter, he should not hesitate to cause the officer in question to be called up, and he can then act as the latter may direct.

The actual office work entailed by the preparation of orders is one which perhaps meets with the least difficulty, for by judiciously selecting the quarters assigned to the various members of the Staff in question, appointing fixed meal hours for all, and assembling all the officers several times during the day at times when experience shows orders from above or reports from below are usually received, there is little fear of any difficulty arising from the Staff in question finding itself short-handed. Finally, the Commander-in-Chief, or as the case may be, General commanding, and his Chief of the General Staff, should never be both absent from head-quarters at the same

* It is very desirable that the office should have but one entrance.

† Men belonging to every variety of corps, regiments, etc., having become separated by accident, or otherwise, from their comrades, are constantly reporting themselves at the offices of the various head-quarter Staffs, with a view to rejoining. The officer on duty must consequently be provided with sufficient information to enable him to indicate to them the right road.

time, so that somebody may be always found who is accurately informed of the actual state of affairs and of the plans contemplated.

There is far more difficulty in *forwarding* orders, reports, etc., to their proper destination. When the distance is great, it has to be done either by telegraph, railway, or relays of mounted men, but if the distance be small, the safest plan is to send several copies by different individuals, such as orderly officers, orderlies, or *Feldjägers*. The latter being specially trained in carrying despatches, and organised for that purpose, may also be used in cases where the distance is very considerable.

As a rule, the *field post* should only be resorted to for correspondence of lesser importance, and requiring no immediate despatch.

The *telegraph* is a rapid and sure means of communication as long as the line is not interrupted, but this may happen either by the act of the enemy, or in consequence of accidents or meteorological disturbances. Any interruption, however, is at once known by the telegraphist, and some other way of communication can then and there be substituted instead. To guard against the possibility of a message being intercepted and falling into the hands of the enemy, telegrams may be sent in cypher, in addition to precautions being taken to ensure the safety of the line; this plan may of course also be followed when it is desirable that any communication should be kept secret, as also when there is any risk of a message carried by orderlies, etc., independently of the telegraph, falling into the hands of the enemy. In any case an answer by telegram should invariably be asked for at the conclusion of the message, stating whether the message has been correctly received. Cyphering and decyphering a message invariably occupies, however, a certain amount of time. Finally, any mistakes that may occur in the cyphering of a message, may be rectified by the receiver repeating the message *en clair* to the sender. The necessity for precaution and the choice in any of the above measures, must always depend on the circumstances of time and place.

In cases where any very lengthy correspondence, such as

"instructions," has to be sent, the telegraphing of which would monopolise the use of the line for a long time, a messenger may be despatched by *railway*. This plan may also be resorted to when the telegraph line alongside the railway in question is out of working order, and it may sometimes be even expedient, in cases where traffic on a line has not been completely established, or has been temporarily stopped, to try and forward an important despatch requiring immediate delivery, in charge of an officer mounted on an engine.

In the absence of telegraphic or railway communication, the system of mounted relays has to be resorted to. It is always well during active operations, when movements are taking place too rapidly to allow of the telegraph being established, to organise a regular system of mounted relays connecting the different head-quarters, and following them in their movements. Such a system consists of a chain of cavalry detachments of about 1 non-commissioned officer and 6 men each, posted at intervals of from 4 to 6 kilometres ($2\frac{1}{2}$ to $3\frac{1}{2}$ miles) apart. Every 20 kilometres ($12\frac{1}{2}$ miles) or so of this chain should be placed under an officer who posts the different detachments, gives the men the necessary instructions, and is otherwise responsible for the efficient working of the system, within the rayon of his authority. The pace at which a letter or despatch is to be forwarded is indicated with the address on the outside or envelope of the document, as follows: one cross means—half the distance at a walk and half at a trot (about 1 mile in $9\frac{1}{2}$ minutes); two crosses mean the whole distance at a trot (about 1 mile in $6\frac{1}{2}$ minutes); and three crosses mean that the despatch is to be taken with the utmost speed of the horse. A small journal or diary is kept by each post, in which the name of the orderly arriving or leaving, the number of documents to be forwarded, and the times of arrival and departure, are entered. Sometimes the receipt of a despatch, etc., sent by mounted relays, is required to be returned in the same way as the document itself has been sent. At all intermediate posts, two horses must always be kept ready saddled, so that two orderlies may be at once despatched in either direction at a moment's notice. The men are to invariably ride in full marching order, and carry

rations of forage; they must, moreover, be warned that the slightest deviation from their instructions entails severe punishment.

In cases where the distance is small, and no chain of mounted relays has been regularly established, despatches, etc., must be sent by *special mounted messengers*. The importance of the contents of the despatch, order, etc., to be forwarded, the difficulty likely to be experienced in finding the best and shortest way, the chance of falling in with the enemy, and the actual distance to be got over, are questions that have to be taken into consideration in deciding whether ordinary mounted staff orderlies, single officers, or *Feldjäger*s should be sent, or again, whether the latter should be escorted by orderlies or even by more or less numerous detachments of cavalry. It may be well, indeed, to send the order, etc., in duplicate or even triplicate, this extra precaution naturally depending on the importance of the contents and degree of risk. Similarly, it is desirable if there be any prospect of the despatch, etc., falling into the hands of the enemy, to send the communication in cypher.*

As a rule, it is not necessary to have horses always kept ready saddled at the different head-quarters; keeping a certain number of orderlies always ready in attendance generally meets the case, for the time taken in drawing up and preparing an order, etc., as a rule lasts much longer than that taken in putting the saddle and bridle on a horse. The orderlies told off in attendance can consequently be warned in time to be ready when their services are required. The same rules are observed as regards the pace at which the despatch, etc., is to be carried, as in the case of mounted relays. When the distance is very considerable, it need, we think, scarcely be said that it is often only possible to forward a message with despatch, by officers exceptionally well mounted and accompanied by orderlies mounted on selected horses.

* It is not proposed to deal in this work with the various expedients and artifices that may be resorted to by the garrison of a besieged or blockaded fortress, to communicate with the exterior, or *vice versa*, by the friends of the garrison, to communicate from the exterior with the besieged.

It may perhaps be just as well to mention here, that in the campaign of 1870-71, the *Feldjäger*s were often, in an entire or partial absence of railway communication, of invaluable service in carrying despatches under the greatest difficulties. By their courage and judgment they often succeeded in reaching their destination through the enemy's country, unprotected by any escort, and using post-carriages only with relays of requisitioned horses. Were we to willingly deprive ourselves of the services of this corps by any of the alterations that have been suggested in its organisation, we should certainly be making a great mistake.

The above may be taken as a brief description of the way in which the more important duties in the office work of any head-quarter Staff are carried on, but it may as well be mentioned that it is neither possible, nor is it indeed necessary, to strictly carry out the same system in detail on a small scale—on a Divisional Staff for instance. The Cavalry Divisions, having unlimited means as regards mounted orderlies and transmitting messages, are of course an exception, but in the case of Divisions or even Army Corps forming an Army, the comparatively small extent of ground covered by each, considerably limits the amount of work entailed in the safe and rapid transmission of orders, etc. The measures again taken to insure this must in each case be modified to suit this circumstance.

Finally, it may as well be mentioned that as sufficient information for drawing up orders for the following day's operations is very often dependent upon reports, etc., not received till late in the afternoon, the issuing of the same cannot take place, even to the highest commands, till somewhat late in the evening. This means that a considerable amount of office duty will be prolonged during the night, entailing on the lower commands work until a very late hour. To avoid the serious inconveniences that such work, if continued for any length of time, would cause the officers, etc., concerned, it is very desirable in forwarding orders, etc., from the head-quarters of an Army Corps or Division, so to arrange matters, if possible, that the orders, etc., may reach the various commanding officers concerned early in the morning and not disturb their night's rest.

b. "DISPOSITIONS" AND DIVISIONAL ORDERS.

Just as various forms are used in carrying on the office work of the different commands, so will a very considerable variety of form be found to exist in the written work performed in the actual bureaux of the Staffs, entailed by active operations in the field.

Special attention must, however, be paid to certain points in drawing up all written documents emanating from the bureaux of the higher Staffs in time of war. The form in which the ideas and plans of a General are communicated to the troops, etc., in his command, is of course in war of vastly more importance than in peace, from the very fact that in the former case far greater interests are at stake. Clearness and accuracy are above all things of the first and highest importance, and consequently the form of expression used must be chosen with the greatest care. [The higher the position of the commander, the more general in character must his orders and instructions be, without being for that, however, one whit less distinct or clear. The question of detail is gone into more and more as we descend the links in the chain of responsibility.

This is best shown and illustrated in taking the case of the orders that are daily issued during the active operations of an army in the field. These we shall call "*Dispositions*" when they are issued by a General commanding an Army or Army Corps, and "*Divisional Orders*," "*Brigade Orders*," etc., when they are issued by a General commanding a Division, Brigade, etc.

Dispositions may be taken as giving the military situation in its main features, together with a general description of the measures to be taken in consequence, without, however, entering into detail as to how these are to be carried out. The latter question must be looked upon much more as one left to be dealt with by subordinates in issuing *orders* framed to meet the requirements of the "*dispositions*." Thus *dispositions* are only issued by officers in a high position, such as Generals commanding Armies or Army Corps, whereas in the case of a Division forming an integral part of a force, it is perfectly practicable, and even

often necessary, to direct its movements, etc., by precise *orders*. Again, on the other hand, a General commanding a detached Division acting independently is perfectly justified in directing the action of his subordinate leaders, who may be often separated far apart, by giving them “dispositions” or even only general directions or instructions (*Direktiven*).

For in giving instructions in the form of *orders*, not only has the strength of troops, but every other minor circumstance, to be gone into, as it must be always understood that an *order* is actually carried out under the eyes of the officer issuing it, whereas *dispositions* take a far more general view of things, give much more latitude to subordinate leaders, and must consequently be supplemented by orders issued by the latter.

The following are the chief points to which attention should be generally paid in framing “dispositions” or “orders” :—

1. *They should be clear.* In the first place the subject should be logically arranged, so that the reader may follow it from point to point to the end, without interruption or disconnection. The style should be clear, the sentences short, and the expressions used those universally understood. All names of places, etc. should be written in the Latin character,* and with the greatest clearness and care. If, as it constantly happens, two places situated near each other are known by the same name, the one referred to should be further described, so as to remove all possible doubt in the matter. In giving the hour of the day, the time should be written in addition in full—for instance “at 9 (nine) o'clock in the morning.” As regards the correct use of the expressions “right,” “left,” “before,” “behind,” etc., see Vol. I, page 275.

2. *They should be precise.* This depends on the situation, as well as to a great extent, on the character of the individual who has to carry out the “order,” etc., in question. A line must be drawn between a strict order, an order in which a choice in the method of execution is left to the officer carrying it out, and again an order in which full discretion and power are left him as to the entire undertaking :—for instance, “The Division will take the

* This of course refers to the order, etc., being written in the German character.

village with the 1st Brigade, the 2nd Brigade being temporarily kept in reserve," or "The Division will take the village," or "The Division will try and gain possession of the village." At times, owing to the peculiar circumstances of the situation, it is impossible to give precise and definite orders, but there must never, on any account, be any want of clearness in meaning, owing to a fear of incurring responsibility, for the subordinate has a right of being made acquainted, as far as it is possible or practicable, with the intentions of his superior. Giving reasons for the steps taken, is on the other hand, a practice that should be avoided, even though the situation which may be communicated to the subordinate leaders for their general information may, as a matter of fact, plainly show the motives that have led to the steps taken.

3. *They should be complete.* In the first place "dispositions" should clearly and distinctly give the *role* that each unit or fraction of the Army Corps, etc., has to play, and at the same time draw attention to any force or forces acting independently for any particular purpose, and consequently acting under special orders. It is only thus that the different subordinate leaders to whom the "dispositions" are communicated, are supplied with sufficient *data* for drawing up and issuing their orders, or as the case may be, are guided in taking the necessary steps in actually carrying out their instructions. "Dispositions" are, as a rule, issued uniformly, and alike to all, and this is a guarantee, to a certain extent, against any accidental omissions or errors they might contain. In spite, however, of this, it may be perfectly justifiable in certain cases of emergency, to give the different fractions composing an Army Corps, special orders to march at once, giving their leaders at the same time a verbal explanation of the state of affairs, and causing the General commanding to be afterwards supplied with detailed "dispositions." An excellent plan of ascertaining whether the "dispositions" or "orders" are sufficiently lengthy and detailed, is for the officer drawing them up to fancy himself in the place of the officer to whom they are to be issued. Anything that the latter should know, should never, on any account, be omitted; but it should be remembered that all details hampering or confining the free action of subordinate leaders, are to be avoided.

4. *They should be brief.* It may be laid down as a general rule, that "dispositions" or "orders" should never contain a word by the omission of which the meaning would not be at once affected.

As regards the form of drafting an order, etc., it is usually the custom to write above on the left, the authority in whose name it is issued, together with higher military commands to which it belongs, and above on the right, the place,* date, and hour of issue. Over the text is written "dispositions for the —th (day on which they are to be carried into effect)" and underneath, the signature.† The hour at which the "order," etc., is sent out, is written with the address on the outside or envelope.

It would be impossible to lay down any further forms to be followed, as drawing up "dispositions" is a work of intelligence and judgment, which has to take into account the many and complicated circumstances of each particular case. But it is, nevertheless, well to draw attention to certain points which should not be lost sight of in the question of "dispositions" for marching or fighting.

Dispositions for Marching are those which are by far of most frequent occurrence during the course of active operations. These "dispositions" have to deal with the combined movements of different forces in the presence of the enemy, and consequently have to take into consideration the possibility of hostile encounters. In the first place they should clearly give the following: the aim and object of the march; the number and composition of the various columns, together with the names of the officers commanding each, (unless this can be clearly seen from the *Ordre de Bataille*); the points of assembly of the different columns;‡ the hour of marching off from the places of

* In giving the name of the place from which Army, or Army Corps "orders," "instructions," etc., are issued, it is designated as "Head-quarters" (*Haupt-quartier*); but in the case of a Division or Brigade, as "Staff-quarters" (*Stabsquartier*).

† Dispositions, etc., may be signed by the Chief of the General Staff, with the prefix "By command or order of the General commanding the Army or Army Corps." (*Von Seiten des Ober Kommandos bezw. General Kommandos*).

‡ It is not advisable in certain cases, to choose the intersection of roads as points of assembly, for when two villages, etc., are connected by more than one road, doubt may easily arise as to which of the roads crossing the other, is meant. In such cases, reference should be made to a village or some such landmark.

assembly, or the hour of arrival at the places on which the marches are directed;* the road which each column has to take; measures of precaution against surprise and attack (whether the several columns are preceded by a common advanced guard, or each is to furnish its own flanking detachments, or detachments to ensure communication); general directions to be followed in case the enemy is met with; special arrangements as regards baggage, trains, ammunition, and other columns; the place where the General commanding the Army Corps (or as the case may be, the General issuing the "dispositions" in question) is to be found; and under certain circumstances, the positions to be taken up or occupied by the troops at the end of the march.

"Dispositions" for marching are not invariably drawn up on the supposition that the enemy is sure to be met with, but the possibility of such an event must nevertheless, never be lost sight of, for experience in past wars has shown that engagements are frequently the result of unexpected meetings with the enemy, but which, nevertheless, entail deployment from column of route into line of battle.

If the probability of falling in with the enemy is quite out of the question, "dispositions for the march" merely mean, as far as the troops themselves are concerned, arrangements or instructions for the movement from one place (or set of cantonments) to another, and "dispositions" in which tactical considerations are taken into account would, under such circumstances, not be issued. The orders for the march would then be drawn up mainly with a view to ensure the necessary movements taking place without any possible crossing of strong columns on the line of march.

Dispositions for Fighting naturally suppose a knowledge of the situation, and of the enemy's strength and intentions. For this very reason "dispositions for fighting" alone are rarely met with. They are only indeed possible when the force or forces in question have been facing the enemy for some considerable

* In the enemy's country, and especially when the subordinate leaders are ill provided with good maps, it is better to give the hour of marching off *from* and not that of arrival *at* a place.

time, or been holding a position on the defensive, which the enemy will in all probability assail. During active operations in the field, "dispositions" with a view of bringing about an engagement or battle bear, as a rule, much more the character of "dispositions for marching," *i.e.*, the troops are set in motion in the direction the enemy is supposed or known to be in, and further orders withheld until he is actually met with.

Supposing, however, that opportunities have been given of roughly reconnoitring the position and strength of the enemy, or his probable line of action may be safely inferred from a knowledge of the military situation and the general state of affairs at the time, certain movements may perfectly well be ordered which may bring about or open an engagement in the most desirable way. But the direction of affairs during the engagement itself, must always remain a matter for orders given on the spot, and while the fighting is going on. It is a notorious fact that orders given during an engagement have often only been drawn up after the action, *i.e.*, orders that have been given, either verbally or briefly in writing, at the commencement of the fighting, have been afterwards collected and put together to form a connected narrative.

"Dispositions" for battle issued before an engagement, should give the following: information on the position or approach of the enemy; the chief object of the impending action, together with general instructions on the plans adopted for bringing about a successful issue; notification of the different columns told off for the attack, or as the case may be, forces intended for the defence of certain positions; the names of the officers commanding the different bodies of troops as united for the particular occasion; the destination of the different columns or forces, giving if necessary, certain features of the ground, either as objects of attack or, as the case may be, *points d'appui* for the defence; whether (and if so, when and where) several different columns, etc., are to be united and act together as one force for a common object, giving the name of the officer who is to take general command of the undertaking; the position of the reserves; and finally, the place where the general issuing the "dispositions" in question, is to be found.

Even in the case of "dispositions" issued for battle when the object to be attained is well known, no attempt should be made in giving instructions, to go beyond what, in all probability, judging from the circumstances of the case, can be carried out. Beyond this, everything must be left to the issue of orders during the engagement contemplated. It is absurd to try and attempt to give instructions in "dispositions," to meet the various and possible contingencies that might occur. Experience shows that when this has been attempted, some case that has not been reckoned on is almost sure to happen and find the subordinate leaders fettered with a variety of instructions effectually crippling their free and independent action. And to the latter must be left, especially in battle, by far the larger part of the proceedings. This is essentially the principle upon which our system of military training is based, and one which must be kept in view in framing "dispositions for fighting."

The question has often been raised whether it is well in giving out "dispositions" for an engagement, to take any measures as regards a retreat in case of a reverse. Opinions have been always decidedly against such a step, from motives of what may be termed an æsthetic nature, and such reasons should by no means be ignored. There is again the question whether, when we make up our mind to accept a decisive engagement, it is either necessary or desirable to think about giving directions as regards a retreat. And this must decidedly be answered in the negative. A retreat can only be determined on when all hope of being able to continue the struggle any longer, is at an end. But it would be always a very doubtful matter whether there would then still remain the possibility of retiring in the most desirable direction, for it must be taken for granted that in the majority of cases, such a line of retreat would not have escaped the observation of the victorious enemy, and the side that is giving way would probably be pressed off the field of battle in the least desirable direction. Any order given at the outset of the action, and defining the line of retreat to be taken in case of a reverse, would then be of no real use whatever. If the enemy does not press on in pursuit, each force or body of troops retires, as a rule, in the direction whence it advanced. Besides, the

subordinate leaders, knowing as they do, the general positions of the trains, etc., are at once enabled to see for themselves in which direction it is most desirable to retire so as to preserve (or as the case may be, regain) their communications.

But though directions as regards the line of retreat are to be avoided in "dispositions" for an engagement, it is nevertheless the duty of those in command to carefully consider every circumstance bearing on the point, and be prepared to issue the necessary instructions on the spot in case of failure. Orders of this kind must, however, always depend on the state of affairs as the fighting is drawing to a close, and only very rarely can be made to coincide with the views entertained and made known in the "dispositions." The first thing is to get clear of the enemy and issue fresh "dispositions" for the march, the most important feature in which, is the line of action to be pursued by the rear guard.

It finally remains to be settled what instructions should be given in "dispositions" for an engagement, as regards baggage, trains, etc. It is desirable, in the first place, that the subordinate leaders should be informed in the "dispositions," of the general positions occupied by these formations; but it is very necessary that they should be furnished with precise information as regards the whereabouts of those particular trains (such as for instance, the ammunition columns and field hospitals), which are to supply the immediate requirements of the troops during the coming engagement. The officers commanding trains and columns receive special instructions with general information on the measures taken in the "dispositions."

As general rules are laid down on the baggage trains that accompany troops in action, the special arrangements that have to be made as regards the movements and positions to be occupied by those trains that remain in rear, are left to the subordinate leaders, who are consequently responsible that these in no way impede or obstruct the movements of the troops.

As a rule, "dispositions" received from a higher authority are not transmitted literally to those below with additional instructions or observations, but each general officer in command inserts in the "dispositions" that he is about to issue, anything that has been communicated to him by his superiors, and

which it may appear desirable, his subordinate leaders should know.

Whenever any alteration is made in the *Ordre de Bataille*, the new arrangement of the troops must invariably be given with the "dispositions" (or drawn up in a clear tabulated form on the left of the text). Divisional orders often give a graphic arrangement of the order of march, *i.e.*, the order in which the various regiments, battalions, etc., forming the main body are to follow each other. In the case of an advanced guard or such like detachment, this is left to the officer actually in command of the force in question.

On the "dispositions" being issued, all the officers belonging to the Staff, as well as the orderly officers temporarily attached, should be accurately informed of the contents. They can only thus be expected to carry out without fail any special mission they may be entrusted with whilst such "dispositions" are being carried into effect, or transmit orders and give satisfactory answers to the questions on them that are sometimes asked by subordinate leaders.

Similarly, the Intendant and Medical Officer of the Staff should be furnished with the general contents of the "dispositions"; they are then in a position to take any steps that may appear necessary to ensure supplies, the efficient working of the Medical Department, etc., etc.

C. "INSTRUCTIONS."

Instructions are issued to commanders of forces who cannot be supplied with the daily "dispositions" of their immediate superiors, by reason of the distance that separates them. From the information thus received, they can, for certain periods of time, direct the movements of the forces they command in conformity with the views of the Commander-in-chief.

Instructions are more general and less concise than *dispositions*; they give no hard-and-fast orders, but rather tend to explain the intentions of the General in whose name they are issued, and in many cases it is impossible in drawing them up, to avoid discussing the various contingencies that may happen.

If an entire and complete change takes place in the state of affairs, new "instructions" must, of course, be issued. The substance of communications of this kind, embracing as it always does, a considerable period in the course of events—generally indeed, an entire series of operations—should be kept as secret as possible.

"Instructions" of another kind are occasionally issued as a supplement to "dispositions." These contain information on the country, the ground, the enemy's forces, etc., and should be distributed as much as possible among the troops.

d. DIARIES OF THE WAR AND TABLES OF OPERATIONS.

All commands, and all corps or regiments down to the infantry or rifle battalion, cavalry regiment, battery, siege artillery or pioneer company, single company or squadron temporarily detached, ammunition and train column, etc., field railway and telegraph formation, keep a diary of the war from the day of mobilisation or leaving their home quarters.*

The object of this arrangement is to have an accurate record of all important events and occurrences worthy of remark, that in any way concern the command or unit, etc. in question; to possess a collection and account of all experiences gained as regards organisation, armament, equipment, supply, etc.; and to compile a narrative of all military operations, so far as the corps, regiment, etc., is itself concerned.

Accurate information must be given as regards marches, engagements, outpost duties, and suchlike undertakings; the nights the force in question has bivouacked or been cantoned; the state of the weather, etc., etc. Copies of all reports furnished on engagements, etc., should be retained and added, as well as lists of casualties in officers, men, and horses, made out after each action.

The original diary is retained by each corps, etc., after demobilisation, but a certified copy of the same, with all supplementary matter, is transmitted to the War Ministry. The latter

* See the regulations issued on the subject, by the Prussian War Ministry, 17th August, 1870.

keeps all matter that refers to the question of organisation, and which should be kept separate from the rest, but forwards the actual diary itself with all supplementary matter referring to engagements, etc., to the General Staff, with a view to its being guarded in the war archives.

It needs, we think, no argument to show how important it is to carefully and conscientiously keep a diary of this description, both in the interests of the individuals and corps, etc., concerned, as well as to furnish reliable *data* for a trustworthy account of the war.

At the head-quarters of Army Corps and larger formations, an officer of the General Staff is detailed to keep the diary referred to; he at the same time has charge of and keeps the *Journal of Operations*.

The following Table may be taken as an example of an Army Corps.

Table of Operations of the —th Army Corps. July 18th.

Corps, etc.	11th.	12th.	13th.	14th.
Head-quarters	A	E	J. bivouac between J and K. H.	} Battle at L. Moved to K in the afternoon.
—th Infantry Division ...	A	E		
—th Infantry Division ...	B	F		
Corps Artillery	C	G		
Trains... ..	D	H		
Detachments	E Detachment of Colonel O.	F Detachment re- joined the —th Infantry Divi- sion.		

Under the heading of "Detachments," should only be placed such forces as are detached with a definite object, by the General commanding the Army Corps. Should a Cavalry Division be for the time attached to the Army Corps, it would be given an additional horizontal line.

e. REPORTS ON ENGAGEMENTS AND LISTS OF CASUALTIES.

By a *Report on an Engagement* is meant the account which every command and every corps or regiment is called upon to furnish to its immediate superior, of the part taken by the same in the action, *as soon as possible* after it has ceased. These are

quite independent of short reports made immediately after a fight is over, giving in a few words the result, together with the steps taken either to follow up the success gained, or cover the retreat, as the case may be. A report on an engagement supposes the author in possession of a certain collection of facts, a knowledge in detail of what has taken place, etc. But on no account whatever must information of this description be acquired by incurring any delay, nor must it for a moment be allowed to outweigh the immense importance of at once forwarding a report on the impressions gained. All officers holding commands, and all corps or regiments, must consequently at once forward their respective reports without waiting for the reports of officers or corps or regiments under their orders. The higher the command held by the officer, the less will be the amount of detail contained in his first report of an action; no apprehension need, however, be entertained as regards a want of this, for it is well known the different corps and regiments generally give too much rather than too little. The numerous contradictory evidence which naturally must occur in such documents is left to be settled later on, when additional reports are called for by higher authority; indeed reports of the latter description, when necessary by reason of errors afterwards recognised, or on other grounds, are usually drawn up and forwarded, even though as yet uncalled for. A request is even sometimes added to a report forwarded directly after an engagement, to have it returned with a view to its being corrected or modified. Such a request should never be granted; for in spite of the many inaccuracies which a report written immediately after an action may contain, it possesses nevertheless a real value, inasmuch as it gives the impressions at the time, of the officer forwarding it.

To extract and compile from this mass of reports and supplementary evidence, and finally write an account with the greatest regard for truth and accuracy, faithfully place on record the real services performed by the different corps or regiments, etc., etc., is a matter left to those who have *afterwards* to undertake the somewhat thankless task of writing a narrative of the war.

But, for the moment, it is merely a question of furnishing the Generals commanding Army Corps and Armies, with every kind of information that may be necessary for effectually carrying on operations against the enemy. The report of an officer in command of a strong force should contain information on the following:—

The circumstances under which the action took place, giving the time at which it began; any remarks that appear desirable on the ground forming the scene of the engagement; the strength, positions, or advance of his own and the enemy's forces; "dispositions," or verbal "orders" issued; critical or decisive phases in the engagement; turning points in the fortune of the day, and reverses: close of the engagement; the result; positions or movements of his own and the enemy's forces after the action; steps proposed to be taken immediately, or in the next few days, as the case may be; advantages gained, or that still remain to be gained, over the enemy; information and description of the enemy's forces that have taken part in the conflict, together with the names of the Generals commanding.

It is evident that the kind of information just described as what should be given, must vary more or less in detail, according as the force in question has been acting independently, or in direct co-operation with other forces, or under the immediate direction of a General in command of all the forces present.

Finally, to the report should be added a detailed account and list of casualties in officers, men, and horses, and of military trophies, prisoners, etc., taken from the enemy. Attention may also be drawn to any very distinguished feats or actions performed by individuals, corps, or regiments; such notices may, moreover, afterwards be extracted and forwarded with any recommendations for decorations, distinctions, etc.

Lists of casualties may be best given as arranged in the following Table: they can, however, rarely be given in such detail until a few days after the action.

List of casualties of the —th Army Corps, for the —th
(month) 18—.

Staff, Corps or Regiment.	Killed.			Wounded.			Missing.			Total.			REMARKS.
	Officers.	Men.	Horses.	Officers.	Men.	Horses.	Officers.	Men.	Horses.	Officers.	Men.	Horses.	
(Given in the order of the "Ordre de Bataille.")													

Under the heading of "Remarks," should be given :—

1. Of the slightly wounded, the following have remained with their corps or regiments—

Officers.

Men,

Horses.

2. Among the missing, the following are presumably dead—

Officers.

Men.

3. Losses in guns, ammunition waggons, etc.

Attached, should be a nominal roll of the officers shown as killed, wounded, and missing, in the above.

f. DAILY REPORTS, AND REPORTS ON OPERATIONS.

Daily Reports are furnished by detached Divisions or forces of this or a greater strength when carrying on active operations, etc., independently, guided by "instructions," and consequently not acting under daily "dispositions."

The daily reports should contain a narrative of the events of the preceding day, together with a report on any engagement, should fighting have taken place ; a summary of all information that has been acquired concerning the enemy ; and a statement of steps contemplated for the following day or days, with special reference to the place where it is proposed to establish the head

quarters* (*Stabsquartiere*), and of the most effectual way of maintaining telegraphic or written communication.

This does not, of course, prevent short concise messages giving a summary or abstract of what will be sent in the daily report, from being previously forwarded with the utmost despatch. Such a step is often absolutely indispensable, and of the highest importance to the detached force in question.

Similarly the Commanders of Army Corps and Armies must neglect no means of maintaining their communications with Army head-quarters and the Commander-in-chief's head-quarters, respectively. They are not called upon to furnish daily reports, from the fact that the operations of such large forces are on a more extended scale and more independent in character, but on the other hand they have to furnish from time to time, *Reports on Operations* dealing collectively with the events, etc., which have taken place in each period or interval. For these reports may be substituted, though as a matter of course, not without the approval of the different Generals commanding, a correspondence between the Chiefs of the General Staff.

g. ORDERS OF THE DAY AND PROCLAMATIONS.

Orders of the day comprise everything not immediately connected with the direction of military operations; they take the place in the field, of General and Garrison Orders, and are, as a rule, prepared and drawn up by the *Adjutantur*.

In all cases where the maintenance of the troops in fighting condition is in any way concerned—as for instance, in questions of reinforcements, remounts, fresh supplies of *matériel*, arms, ammunition, the sanction of extra rations, orders on the subject of guards or orderly duties during halts of any duration, etc., etc., the General Staff must be referred to, and the necessary arrangements made by order through the Chief of the General Staff.

Proclamations form a special subject by themselves. They should never be commonly resorted to as they then at once lose their value. We maintain in the German Army—and in this

* See footnote, page 90.

respect differ from some others—that a proclamation is not in itself a factor of considerable importance; we rather try and accustom ourselves to believe in acting quickly and unhesitatingly and saying little. There are circumstances, however, under which a proclamation may be useful, indeed in some cases necessary, be it either to make an impression on the minds of the inhabitants of the seat of war, or on those of our own soldiers. The tone employed must consequently vary according to circumstances; the inhabitants of the country in which the war is being carried on, should be informed in a short and clear style, of the conditions under which they may hope to be spared any measures of severity. The rules to be observed by the inhabitants, should be accompanied by threats of severe punishment on all transgressors, but these threats should be carried out to the very letter.

A proclamation to the troops is, on the other hand, generally given in the form of thanks, or recognition of some signal feat of arms. Such an address is usually issued on the spot immediately after a victorious engagement won with great sacrifices. A few words coming from the heart of the General, and avoiding the indifference wrongly supposed to be inseparable from his high position—much more than any outbreak of pathos, so foreign to the German character—go straight to the heart of the soldier, and tend to dispel the fresh impressions of the terrible ordeal he has just gone through.

It would be a great mistake to try the effect of repeating proclamations which have before, at a different time and place, been issued by order, and have been known to produce a good effect. It would be too much to expect that soldiers would look upon such a proclamation as original; it represents indeed, rather an effort of the memory than of the heart.

Far more powerful in its effect on the feelings of the soldier than any proclamation which is read in the same words, on parade, to all corps and regiments, are a few heart-stirring words, spoken by the General on the spur of the moment at the right time and place. It is well to bear in mind, however, that few have the natural gift of using the right expression at the right time.

CHAPTER IV.

MARCHES.

a. ON THE CONCENTRATION OF TROOPS BY ROAD, RAILWAY, AND STEAMBOAT.

1. MARCHES AND QUARTERS ON THE MARCH.

*The strategical concentration of an army, i.e., the assembly of the troops ready to take the field, in the immediate neighbourhood of the country that is to form the probable scene of hostilities, is effected now-a-days almost entirely by railway. Corps, regiments, etc., are conveyed in succession by different lines converging on, or leading to, points in the neighbourhood of the *rayon of concentration*. The fact that they cannot all complete their mobilisation by the same time, makes it desirable to commence the movement of concentration with those corps, etc., which are first ready to take the field. Consequently, the movement of concentration takes place whilst mobilisation is still going on.*

The commencement of the movement to the front of large masses of troops by rail, does not, however, solely depend on the time when those corps which are most quickly mobilised, are ready for the field; it also depends whether the rolling stock of the various railways which has first of all to be used in conveying men, horses, and *matériel* to bring the army up to a war footing, is again available in sufficient quantity to carry on the movement to the front without a check. The time that must be allowed to elapse before this can be the case, we may always hope to see reduced, in proportion to the care and foresight used in making beforehand the arrangements for rapidly completing the ranks on a war footing, assembling the men and horses with the least possible amount of traffic, and reducing the amount of *matériel* that has to be moved on mobilisation, to a minimum.

But even supposing these arrangements to have been made with the greatest conceivable care, and enabling the forward movement of troops *en masse* to commence whilst mobilisation is still in full swing, a certain amount of marching by road must always be done by some troops.

This can only be looked upon as a drawback, if the concentration of the whole is delayed in consequence of a part having to move by road. It is well to remember that the use of railways in the strategical concentration of armies, must only be taken as enabling the operation to be rapidly carried out—and no more. The loss of the great advantages of marching by road which formerly always had to be done, and, in spite of a certain diminution in numbers, prepared the troops in the very best way for the coming work of the campaign, cannot be said to be now compensated for by the fact that an army can be transported by rail to the rayon of concentration without, it may be almost maintained, the loss of a man or horse. A certain amount of marching by road is consequently very desirable, provided it in no way delays the massing of the whole army in the rayon of concentration.

Marches, moreover, have to be performed by corps or regiments which complete their mobilisation at a distance from the points where they take the rail, or when the railway does not take them to their actual destination in the rayon of concentration, and again, large forces mobilised in districts in which they are stationed in peace, and lying near the rayon of concentration, can reach their destinations in the latter by road, within the time allowed for the massing of the whole army.

In the operation involved by the *movement of the troops from their respective garrisons to the frontier*, it is desirable to assign as a destination to the Army Corps, etc., to which they belong, a portion of the rayon of concentration lying on that wing of the army of which it is to form part, as troops arriving by rail, and afterwards moving into cantonments by road, are then much less liable to cross each other on the line of march. The length of the marches the troops will have to perform, must depend on the time available for each corps, etc., to perform

the total distance to be got over, as well as on considerations of house accommodation and supplies on the line of march. It is not advisable, nor is it indeed justifiable, except when it cannot possibly be avoided, to diminish the rate of marching to such an extent that the day's march averages less than $22\frac{1}{2}$ kilometres (14 miles) per day, including however, the halts made every fourth or fifth day.*

The first few days' march should always be comparatively short. For if this is found to be advisable in time of peace in moving troops to the annual manœuvres (*see* Vol. I, page 247), it is the more so in the case of war, as it is very desirable that the men should gradually get used to their field equipment, and especially to new clothing, boots, straps, etc. The bad effects of the latter are less felt in a short day's march, and time and leisure are moreover afforded when in quarters, to rectify by minute inspection, any evils incidental to a hurried mobilisation.

Certain corps and regiments are nevertheless called upon to make long marches from the moment of leaving their garrison quarters, for it is often of the utmost importance to hold with a strong force of infantry and artillery, places lying near the frontier, or points where the railways, etc., are to bring the army *en masse*, to reinforce without delay the garrisons of frontier fortresses, or to at once push forward some regiments of cavalry to form a cordon of outposts to watch the enemy's forces and cover our own movements. The severe marching which is unavoidable in the early days of the general concentration, in such cases, may often be compensated for by the extra rest obtained by the troops that have been pushed forward at the outset, whilst the remainder of the army is being massed.

Marches to points of embarkation on the railway are, as a rule, short. The network of railways in Germany is such that it requires but little marching by road to reach the railway in any part of the Empire, and by far the greater part of the army is quartered in garrisons situated on the various lines of railway.

* The rule observed in time of peace, that Sundays and Feast days are always to be looked on as days of rest, of course no longer holds good.

Troops so placed have, of course, generally speaking, no marching to do at all to reach the railway, for, even if the garrison they belong to is not actually situated on one of the main lines of railway used in the general movement to the front, they can always reach the latter by branch lines. Difficulties are rarely, if ever, met with in making arrangements for this.

If several bodies of troops are to be despatched by rail in rapid succession from the same place, and owing to numbers, quarters have to be assigned them in the neighbourhood of the town, it is well to remember that those regiments, etc., which are to proceed at inconvenient hours (in the night or shortly before daybreak), should be given quarters *nearest* the railway station, and, if possible, in the town itself.

The question of *disembarking troops* in or near the rayon of concentration, is one which presents far greater difficulties. Positions must now be assigned to the troops in accordance with the *Ordre de Bataille*; but facilities of railway transport are often anything but adapted to this, for the time taken by different corps, etc., in mobilising in their respective garrisons, being variable, and the rolling stock available not being always adapted for carrying the different arms, etc., are questions that have something to say to the order in which it is possible to forward the troops. Troops, again, often arrive by rail in rapid succession at the place where they are to disembark, and, having to be moved away at once by road in order to avoid excessive crowding, cannot reach the points assigned them in the rayon of concentration in *one* day's march. Quarters whilst on the march must consequently be found, and it need scarcely be said, such quarters, if assigned to other troops as points of concentration, must for the time being, be left unoccupied by the latter. This entails a certain amount of marching to and fro, which is all the more difficult to avoid, as under these circumstances, the country is invariably strongly occupied, and special arrangements have to be made for provisioning the troops. The times of arrival have also to be considered. Troops arriving late in the afternoon or in the evening or night, should never be called on to march any distance to reach their quarters; the latter should always be near the place of disembarkation.

In a long railway journey the feet swell, and if infantry soldiers are called upon to march for any distance on leaving the train, the new boots are sure to cause a large amount of foot-soreness.

But supposing even every precaution to have been taken, and nothing neglected to secure punctuality, etc., it should never be forgotten that stoppage in the traffic or a check causing a delay of several hours (which is at once transmitted along the line to all succeeding trains), at once entirely upsets the arrangements given in the Time Table, and troops arriving in the evening would be called upon to march a long way to their quarters, whilst those arriving in the day would find their quarters close by.

As it is almost impossible to change, at so short a notice, the quarters that have been assigned to the troops, some luckless officer of the General Staff who is in no way to blame for the *contretemps*, and who has very likely done his best and striven hard for several days together to make everything work smoothly, generally gets the benefit of everybody's displeasure. He must never, however, allow himself to be discouraged by such accidents.

From what has been said, some idea may be formed of the difficulties to be contended with in finding quarters for troops arriving *en masse* by rail, and of the direction in which the General Staff should chiefly turn its attention to make the best arrangements. In extreme cases, indeed, bivouacking must even be resorted to.

Further details on the subject of quarters during this period of a campaign, are given in Chapter V.

2. RAILWAYS AND STEAMBOATS.

Attention has already been drawn in Vol. I., pages 282-294, to the circumstances on which the amount of traffic, in a military sense, that a *line* of railway is capable of, may be said to depend. But in the question of massing an army in a given direction, the resources of the *whole railway system* of the country comes into play.

In the case of the march by road, of large forces concentrating in the shortest possible time on the same point or on points situated close together, the number of roads that can be simultaneously used, is of the first and highest importance; but in the case of the same operation being effected by railway, the rapidity and certainty with which troops can be conveyed *en masse* by rail, depend in the first place on the number and resources of the *through* lines available. Thus the whole system of railways of the country must be studied in each separate case, and it is evident that, in certain directions and rayons of disembarkation, the facilities offered are greater or less than in others.

The choice in the rayon of disembarkation must consequently depend as much on the configuration of the railway system as on other considerations. In the first place, there is the amount of traffic that the different main lines are capable of, and these are often made up of sections of lines varying in this respect. If it is only a question of *personnel* or *matériel*, the defects in any particular section may be remedied by borrowing, so to speak, from other sources, and the total line thus brought up to its maximum state of efficiency. But the obstacle is generally of a technical nature, depending on the character and construction of the section in question, which cannot be remedied at a short notice, and seriously affects the traffic of the whole line. Consequently, in choosing through routes, any defect of this description requires serious consideration. Branch or side lines joining or connecting the main or through lines, must also be examined in addition to the latter.

From what has been said, it may be inferred that the capabilities of a railway system cannot be laid down in an abstract form. This can only be done for each case taken separately; and first of all, the frontier on which the army is to be massed, as well as the different points on the same in or near which the troops are to be concentrated, must be given.

The capabilities in each individual case may be briefly said to be expressed by the number of through lines of railway leading to or into the rayon of concentration, and by the number of trains that can be daily run through on them.

Dividing then by the latter, the total number of trains required to convey the whole army, we get roughly the final and most important result, viz., the time taken by the army in massing in the given direction, from the date of arrival of the first trains.

It is the duty of the General Staff to examine, in time of peace, the precise resources of the railway system of the country with a view to the concentration of the army on the different frontiers, and to carefully compare the results obtained in each case with the facilities for concentration possessed by the neighbouring country or countries.

If in this comparison we are clearly shown to be at any disadvantage, we at once run the risk of being deprived of the advantage of the initiative, and even forced, under certain circumstances, to deploy our forces strategically at a considerable distance from the frontier, so as to avoid the danger of being attacked by the enemy whilst our forces are being concentrated by railway.

When any drawbacks of this description have been recognised *beforehand*, they may often be remedied by the simple process of extending the railways at the expense of the State. But the efficiency of a railway system is much enhanced if all complicated through lines are placed in the hands of a *single direction*, and the various sections forming part of them laid out, maintained, and managed, on similar principles.

Without, however, being able to secure beforehand any of the advantages we have just alluded to as desirable, the German military authorities succeeded, on war being declared in 1870, in conveying in eleven days on six North German through lines of railway, to the western frontier:—

356,000 men

87,200 horses

8,446 guns and carriages

comprising combatants almost exclusively up to the eve of the 4th August, and up to the 9th August in 15 *echelons* (18 on one line and only 5 on the other), altogether some—

16,000 officers

440,000 men

135,000 horses

14,000 guns and carriages

in 1,205 trains running on 115,000 axles.

We may reasonably assume then that in future our performances under this head will not be behind these.

In the question of the *transport of troops by steamboat*, the only questions that have to be examined are the vessels themselves, and the facilities and arrangements for embarkation and disembarkation. The road itself, which in the case of railway transport plays such an important part, is here replaced either by the open sea, or by bays, harbours, lakes, or rivers. Rivers are very rarely sufficiently navigable for the purpose, and hence the reason why they are so seldom turned to account. Again, the means of conveyance (steamers) on navigable rivers is very small in comparison with the rolling stock of railways, and this defect coupled with the absence of sufficient communication between rivers, at any rate for the purpose now under consideration, is the reason why conveyance by steamer may be looked upon only in the light of a secondary or subsidiary means in the concentration of an army.

Under certain circumstances, however, river navigation may be turned to account, and it is well therefore to give a few notes that may be useful on the subject. It may as well be remarked, before going any further, that river steamboats are not, as a rule, suited for conveying horses in anything like numbers, and that they are best turned to account in carrying infantry and *matériel* only. Cavalry, artillery, and trains are best sent by rail, or failing this, by road.

For the conveyance of infantry it is necessary, first of all, to know the accommodation of each vessel available. This is, as a rule, known beforehand, but it should not be taken as the number of passengers she can accommodate either as travellers or pleasure parties; for the soldier, it should be remembered, in full marching order, requires more room for a long journey (with perhaps diminished speed) than the civilian who is simply making a short Sunday afternoon's excursion from one place of amusement to another.

Bearing this in mind, the following may be taken as the *approximate* accommodation for troops afforded by river steamers.

Steamers on the Lower and Middle Rhine .. 600 men.

(Small steamers and tugboats only 300 men)

Steamers on the Upper Rhine above Mainz .. 400 „

„ „ Main and Moselle, up to .. 400 „

„ „ Ems 150 „

„ „ Weser 300 „

„ „ Upper Elbe 350 „

„ „ Lower do. 500 „

„ „ Trave 200 „

„ „ Oder, below Frankfort .. 400 „

„ „ Vistula, below Thorn .. 250 „

„ „ *Haffe* 400 „

If conveyance by steamer is to be resorted to, the accommodation and capacity of each vessel must naturally be carefully ascertained beforehand.*

Independently of the above, steamers possess great importance from their power of towing. Used as tug-boats, steamers can tow long lines of barges or vessels laden with enormous quantities of stores, either for the use of the army in the field or fortresses on the river.

3. ARRANGEMENTS FOR THE MOVEMENT OF LARGE BODIES OF TROOPS BY RAILWAY. TABLES OF RAILWAY JOURNEYS AND MARCHES. DISPOSITIONS FOR RAILWAY TRANSPORT.

The general arrangements for the conveyance of troops by rail *en masse* with a view to the concentration of an army, are made by the Director of Military Railways (*Chef des Feld Eisenbahn wesens*) (see page 74).

Owing to the dimensions which the network of railways covering the country has now-a-days taken, it appears impossible to expect that the whole system can be supervised immediately, and in detail, by one central authority. The

* In the concentration of the army in 1870, the steamers on the Rhine were used for conveying the sick, or as floating hospitals.

whole network of railways must consequently be subdivided into several large traffic managements or districts which, acting as intermediate agencies, can turn the resources of the different companies to account. Large railway managements of this description do not exist in Germany, or at any rate cannot be made to coincide with the requirements of military transport.

Fixing the boundaries or limits of these "directions" or districts—which should be drawn so as to carefully divide the lines, etc., which may be said to belong to one through route, from those belonging to another—is of the very highest importance as regards the conveyance of troops *en masse* by rail. The traffic management in each of these "directions," the employment of *personnel* and *matériel*, and the arrangement of the working of through and branch lines, are matters under the immediate superintendence of a *Commandant of the Line* (*Linienkommandantur*).

It has already been stated (page 108), that a permanent subdivision of the traffic management into "directions," etc., cannot be made to equally suit the various cases that may occur, as regards the concentration of the army on the different frontiers. We have, it is true, in every case the same *data* to start from, viz., the identically same network or system of railways covering the country, and generally speaking, the points *from* which the movements would commence (garrisons, or places of assembly of corps, regiments, etc.); but on the other hand, the points *on* which the movements would be directed, vary of course, in each case. Again, the arrangements which must be made in peace, and especially the question of subdividing the traffic management into directions, etc., are materially affected by our political relations with our neighbours, and the results these are likely to lead to.

It may be therefore said to be impossible to organise the "directions" so that the arrangement may be the best possible for every case that may occur; it should be made to meet the requirements of the most likely case, and the one which, in all probability, will first happen; those of other cases must, however, by no means be ignored, so that it may be given a more permanent character than that of the considerations upon which it is based,

and which from their political nature are so constantly liable to change.

In the question of military railway transport—in which every precaution against accident cannot be too strongly insisted on—it is more than ever necessary to secure a well-trained *personnel* accustomed to work and do business together from constant habit. This must be carefully borne in mind in selecting the main through routes.

It was stated more than once in Vol. I, that the resources of different lines of railway, vary very considerably. Now we find that there is always a tendency, from commercial and other considerations in time of peace, to establish through main routes of communication the different lines of which afford great and similar facilities for traffic. These lines are soon worked on a uniform system of traffic management, and we are consequently obliged to look upon them as the main through routes best suited to the heavy transport of troops *en masse*. The more there are of these separate and independent through routes that can be made use of in the particular case, the better. If different through lines meet, cross, or merge into one another, there is always the danger of a block in the traffic at a place not only affecting the working of *one* line, but very seriously interfering with that of *others*.

Under certain circumstances, however, it may be found almost impossible to define the limits of each direction or district, so that the working of one through line does not interfere with or obstruct that of another. When this occurs, the necessary arrangements are made by the central authority, *i.e.*, the Director of Military Railways.

The latter, on receiving the necessary information as regards the concentration of the army from the Chief of the General Staff of the Army, has first of all to draw up a set of *General Transport Dispositions* based on the following:—the *Ordre de Bataille* of the field army, and the distribution of the garrison troops; the instructions of the Chief of the General Staff of the Army on the rayons of assembly of Armies and Army Corps; the points of disembarkation in accordance with these; lines of march; places of assembly of *Etappen* formations; collecting

stations (*Sammelstationen*), or places where the lines of communication from various corps districts meet, and thence lead to the front; transfer stations (*Uebergangsstationen*), or places where traffic passes from the hands of civil to military management; bases of the lines of communication (*Etappen-Anfangsorte*),* or places where the *Etappen* lines begin; the Time Tables and the designation of the different lines; the insertion of extra or supplementary trains, etc., in the Time Tables; and finally, the Time Tables of mobilisation of the Army Corps.

In the concentration of an army by railway, certain classes of trains must be given precedence as necessary to secure the safe transit of what has to follow—for instance, the baggage trains which are only wanted when the concentration is practically completed, and the army is about to begin active operations. Thus, when the army is being massed on the frontier by road and rail, the forces that are being conveyed by the latter means, should be despatched in trains sorted so as to maintain as far as possible the *Ordre de Bataille* of each component part of the army, and thus enable the whole to be able to strike a blow without a moment's delay.

Some idea may now be formed of the numerous requirements which the labours of the central authority have in the first place to comply with. These must furnish sufficient information and *data* for the ultimate *division of the transport* among the different directions or main through routes. The detail that now has to be worked out, giving as a final result for the immediate use of the troops, *Tables of Railway Journeys and Marches* (*Fahr-und Marsch tableaux*), and *Dispositions for Railway Transport* (*Fahrt-dispositionen*), is left to the care of the *Line Commandants* (*Linienkommandanturen*), though the preliminary work is often, in certain cases, undertaken by the Railway Section of the Great General Staff—this plan having the great advantage of affording practice in the subject, to the officers of this Department.

* For further information on *Sammelstationen*, *Uebergangsstationen*, and *Etappen-Anfangsorte*. See Chapter VII.

The detail that has to be worked out in the case of each "direction" or main through route, may be classed under the following heads :—

1. The troops, *matériel*, and everything that has to be forwarded by the line in question.
2. The garrisons or places of embarkation of the above.
3. The places of disembarkation.
4. The requirement in axles.
5. The maximum amount of traffic the different sections of the line in question can furnish.

1. Unless special instructions are given ordering certain troops to be sent on in front, the first thing to be done is to fix the order in which the staffs, corps, regiments, etc., and special formations, are to be forwarded. In this question the following may be laid down as general rules.

The combatant troops of any force should precede the columns and trains belonging to it, and again, in an Army Corps, the Division, and in a Division, the brigade, which can first be assembled, is the first to be forwarded. Divisional cavalry should precede, or at any rate accompany, the leading infantry; Divisional artillery should be with the leading infantry brigade, or at any rate with the centre of the infantry; pioneers and Divisional bridge trains, as soon as they can be inserted after a regiment of infantry; and bearer companies, with the Divisional Staff or at the tail of the infantry (in the latter case with some field hospitals). The staff of one infantry brigade should be forwarded with the leading battalion of the Division; that of the other, after the Divisional Staff; and the latter therefore with the leading brigade as well. The Corps Artillery should be forwarded, if possible, between the Divisions. The Army Corps Staff and Departments either accompany or immediately follow the leading Division.

As regards columns and trains, the field bakery column should be forwarded as soon as possible; the first *echelon* of trains and a division (*Abtheilung*) of ammunition columns, immediately following the second Division; and the staff of the train-battalion and the provision columns (*Proviant-Kolonnen*) of the second *echelon*, behind the first *echelon*.

Next should follow the field hospitals, the second division of ammunition columns, the Corps bridge train, the horse dépôt, and finally the park carriage columns.

These rules should, however, be departed from, when by strictly following them, there would be a train or a portion of a train available left unoccupied in consequence, or when embarkations or disembarkations would follow too rapidly at inconvenient stations, or when it would be possible by making slight alterations, to preserve the regularity of traffic on the neighbouring lines of railway so that certain fixed numbers of trains might be daily run on certain lines.

Four trains laden with supplies should be included in the amount of railway transport required for each Army Corps, the provisions thus forwarded being intended to assist in supplying the Army Corps in the rayon of concentration. A train laden with 250,000 kilog. (246 tons) can more than furnish subsistence for an Army Corps for two days—reckoning the Army Corps as 37,000 men and 10,000 horses only, and the man's average daily ration as $1\frac{1}{2}$ kilog. (3·3 lbs.), of meat, bread, vegetables, salt, and coffee, and the horse's ration as $5\frac{1}{2}$ kilog. (12·2 lbs.) of oats—and at the same time, provide for the occasional wants of the Cavalry Divisions. Care should be taken in forwarding trains laden with supplies, that they do not follow each other too closely if they are to be unladen at the same station.

2 and 3. The embarkation and disembarkation of troops, and especially of trains, are operations, it should be remembered, requiring no inconsiderable amount of time, and which in certain cases where local arrangements are ill-adapted for the purpose, may be so great as to practically render the railway station in question altogether unfit for the purpose, or at any rate only available at long intervals of time. Even with the very best arrangements, more trains run daily on one through route than can be possibly laden or unladen at any one station. As regards embarkation, the peace distribution of the army in garrisons at once enables the operation to be carried out simultaneously at several stations. But disembarkation takes place, as a rule, in a contracted rayon, and it is desirable to have as many points of disembarkation within this space, as

will allow each train arriving in succession several hours to unload. This is considerably more than is absolutely necessary for the purpose, but allowances must always be made for the checks and delays that occur in the traffic.

4. As regards the length of each train, it may be laid down that, if possible, it should not exceed 110 axles, in no case be greater than 120 axles, and as a rule, be 100 axles or somewhat less.

Taking 10 officers or employés, or 16 men, or 3 horses and 1 man, or $\frac{1}{2}$ a gun (with limber) or four-wheeled carriage, or $\frac{1}{2}$ a pontoon waggon, per axle, the requirement in axles of every corps, regiment, etc., can be ascertained, and from this the arrangement and putting together of the trains, so as to avoid as much as possible breaking up regimental or tactical units.

5. The maximum amount of traffic that the sections of any through line are capable of, may be best expressed by the number of trains that can be run over the lines in question in 24 hours. This must be carefully ascertained in each particular case, but sometimes the *General Transport Dispositions* give the necessary information on the subject.

The *Table of Railway Journeys and Marches* (see form given on page 118) that has to be drawn up for each Army Corps or independent Division, to meet the requirements that have been just described, requires some slight explanation.

1. The time taken by the whole journey is shown by a horizontal coloured line, and if several lines are used for one Army Corps, by horizontal lines of different colours. For instance, if a corps or regiment leaves at noon on the 22nd, and arrives at midnight on the 24th, the horizontal line in the table would be drawn from the centre of the vertical column 22 to the end of the vertical column 24. The name of the *station of disembarkation* is written in black on this line.

2. If the *station of embarkation* is not the same as the place of mobilisation, the former is written before the commencement of the line above referred to, and in the vertical column of the day on which the Corps, etc., reaches the place of embarkation, which would, as a rule, be in the column of the day before the day of departure, or in the case of the example given, in column

21. But if, as an exceptional circumstance, the troops in question have to perform a march by road on the day of embarkation, then the place of embarkation would be given in the column of the day of departure (and should be placed as much as possible before the commencement of the horizontal line described).

3. The movements necessary before embarkation are given by the conventional signs and in accordance with the rules observed in Tables of Marches, and the same may be observed as regards any marching that has to be done after disembarkation. The arrangements for the latter, especially as regards fixing each day's march, are left to the Army Corps' authorities. But the railway authorities nevertheless, in drawing up the tables of Railway Transport and Marches, show the days of marching and rest, in a general way, by the letters (M) and (R) respectively.

TABLE OF RAILWAY TRANSPORT AND MARCHES OF THE
—TH ARMY CORPS FOR CONCENTRATION AT O.

No.	Corps, Regiment, &c.	Will be mobilised and ready to march.		On the —th day of Mobilisation.				
		A B	On the day of Mo- bilisation.					
				20th.	21st.	22nd.	23rd.	24th.
1	Army Corps Staff and Depart- ments (<i>Branchen</i>)	A	19th					
2	Staff of the —th Infantry Divi- sion and Departments	A	19th			O.		
3	Staff of the —th Infantry Brigade	A	19th			O.		
4	Staff of the —th Infantry Brigade	A	19th			O.		
5	—th { Staff and 1st batt. ...	A	16th			P.		
6	Infantry { 2nd „ ...	B	17th	(M.)	F.		P.	
7	Regiment { 3rd „ ...	C	17th	(M.)	F.			P.
...	... {			
...	... {			
17	—th Dragoons ...	D	16th	F.		...	O.	
18	—th Field Division of the —th Artillery Regiment	E	18th	(M.)	G.			O.

From the *Dispositions for Transport*, (see following Table together with the Table of Railway Transport and Marches) can be ascertained—the hour of departure of each corps, etc., its

arrival at stations where halts for rest, etc., are made, showing at the same time those where refreshments (coffee or dinner) are provided, and the day and hour of arrival at the place of disembarkation.

All arrangements connected with the actual railway transport, even as regards the feeding of the troops in the trains, are made by the railway authorities. Corps, regiments, etc., have to strictly comply in every way with the instructions of the latter.

b. MARCHES IN THE PRESENCE OF THE ENEMY.

When troops are marching *in the presence of the enemy, i.e.*, when there is any possibility of their meeting with the enemy on the march, the question of their being immediately ready to engage, takes precedence of all other considerations.

The hour at which a body of troops is to reach or arrive at its destination or object, is that which is almost invariably given out or fixed, and consequently the hour of departure, at any rate as regards certain portions of a large force, is often a somewhat difficult question to arrive at. Again, the object to be attained (the enemy) is in many cases, not only imperfectly known as regards its position and whereabouts, and must be sought for on the march, but may be itself on the move. Another great difficulty to be dealt with in issuing the necessary orders is the small number of roads available, for, with the size of modern armies, when two opposing forces are in presence of each other and have established close contact between their advanced posts, huge masses of troops have to march in a contracted space and on few roads. When troops become massed, indeed, on a given space beyond a certain point, actual *marching, i.e.*, the regular movement of troops by average day's march on the roads of the country, becomes impossible; forces, under such circumstances, can only be *moved, i.e.*, change positions in most inconvenient formations for marching, and consequently only practicable for short distances, moving to a certain extent across country. The great thing then is to be concentrated at the right time (for fighting), and separated at the right time (for marching, house accommodation, and subsistence). In the judicious application of these two well known principles, chiefly lies the essence of the skilful manœuvring of large armies.

Marching is by far the most constant occupation of armies in the field; and all arrangements for marches are in the hands of the General Staff. But in spite of the apparent complicated nature of this duty, and the necessity for duly weighing conflicting interests (such as for instance, keeping

the troops ready to engage, and at the same time caring for their comforts), the thing is in itself tolerably simple if the relations between time and space, as well as the tactical and strategical considerations of the moment, are never lost sight of.

As regards the latter, in certain cases—as for instance, in a pursuit or to anticipate the enemy at a point of strategical importance (such as a junction of railways or roads, a mountain defile, a bridge, etc.)—it may be necessary to call for the greatest exertions on the part of the troops for a few days. In other cases again, the troops may, and therefore should, be spared.

The tactical situation is chiefly expressed by the extent to which the columns on the march are more or less kept prepared to engage, by the precautions that appear necessary against surprise, and in many cases by the choice of roads which have the advantage of being screened from the enemy's view or fire, but which otherwise have nothing to recommend them and would not be used. Again the formation of advanced guards, etc., the order and composition of the troops in columns of route, the hour of marching off, etc., are questions affected by tactical considerations, often indeed to an extent involving considerable hardship on the troops. Even night marches may be justifiable under certain circumstances, but these, owing to the serious drawbacks attending them, should only be resorted to on mature consideration, and then only as an extreme measure.

It may sometimes happen that in war, and even within the theatre of active operations, there may be no reason why certain forces should not march with very little more than the ordinary precautions and arrangements observed in peace. One rule must be observed, however, and that is—under no circumstances whatever should artillery be allowed to march for any distance separated from the other arms.

The relations between time and space require the most careful consideration. The length occupied by a force in column of route on a road, must be known, as well as the time it takes to get over a given distance. Defiles that have to be passed must be carefully examined. Errors of judgment or

- omissions made in the application of these principles, are sure to be followed by the most serious consequences ; for independently of every kind of mishap that is thereby likely to occur, troops are generally harassed without any reasonable excuse, by unnecessarily early starts, constant and unwished-for halts on the march, and such like occurrences.

The mistake that is usually made, and which directly brings about results such as these, is the massing of too large a force at the same rendezvous whence it must march off by the same road—the desire being, to keep the troops well together and complete the day's march at an early hour.

It often happens that circumstances do not allow the tactical and strategical situation to be sufficiently clearly grasped, so as to enable the best arrangements to be made when issuing orders. Again, the character of the roads, especially in an advance, is often imperfectly known, though with the aid of good maps, and taking the state of the weather into account, some sort of a conjecture can be generally arrived at ; the weather, moreover, on the day fixed for the march is always liable to change, and cannot be known with any degree of certainty beforehand.

Actual errors are consequently in this respect as liable to occur as they are often unavoidable. But to issue instructions that could have been shown beforehand to be impracticable or impossible to comply with, is an unpardonable blunder. Mistakes of this kind can generally be traced to an imperfect knowledge or conception of the lengths of the various columns, and their rates of marching.

The want or absence of discipline among the troops on the line of march (*Marschdisziplin*) on the other hand, will often frustrate the very best arrangements. For reasons of this kind again, are night marches more than ever undesirable, for it is extremely difficult to maintain the necessary discipline in the dark ; mistakes too, are very liable to be made in the road at night, and are often only discovered when it is much too late.

1. COMPOSITION AND STRENGTH OF COLUMNS.

The composition and strength of the various columns of route depend first of all on the total strength of the force that is marching, and the number and quality of the roads available.

A force should always march on as broad a front as the military situation may justify. Supposing then that an engagement is possible on the march, the fact of such an occurrence being more or less probable, gives the degree to which this rule should be made to apply in each case.

The necessity for dividing a force is, however, inevitable as regards its length on the march, by reason of the measures that are necessary against surprise, the peculiar properties of the different arms, the necessity for intervals in the columns, and above all, by what is considered the maximum length of a column of route for a day's march. Hence, when this maximum is exceeded for any given road, the force in question must be divided, either as regards its length into *echelons* of a day's march, or as regards its breadth into parallel columns. The latter expedient is at the same time just as often necessary as a precaution against surprise and attack, and frequently is very desirable from a tactical point of view, as enabling an outflanking attack, etc., to be made on the enemy. If a *large* force is marching on a *single* road, the troops at the tail of the column come up in line much later than if the force marched by several roads, and in the former case the force in question is in reality less concentrated for battle, notwithstanding that the troops follow in one continuous column, than in the latter. A judicious division, therefore, into columns, has the great advantage of enabling troops to be more rapidly deployed into line of battle, and at the same time more easily housed and fed.

Though as regards the two latter points, it is not very easy to lay down any precise rules as to how far troops may be scattered, there is one broad principle that should never be lost sight of, and that is—the division of a force into lateral columns is disadvantageous as regards deployment into line of battle, if the distances between the different heads of columns, are

together much greater than the total depth of the whole force, if it were marching in *one* column.

For instance, a Division, the combatant portion of which occupies when advancing by a single road, a depth of some 7 or 8 kilometres ($4\frac{1}{2}$ to 5 miles), requires about two hours to fully deploy into an alignment with the leading troops, taking the front so occupied as 2 kilometres ($1\frac{1}{2}$ miles) at the outside.

Now supposing the Division to be advancing in alignment by two roads, some 2 kilometres apart, it would take just half the time to deploy on the leading troops of both columns. This advantage diminishes as the lateral distance between the columns increases beyond this limit, and ceases entirely when it greatly exceeds half the depth of the whole Division in column of route, for, if one of the columns has to converge on the head of the other to deploy into line of battle, it has to execute more or less of a flank march occupying, in all probability, very nearly as much time as would be taken to deploy from behind, when advancing by the same road as the other column. There may, however, be advantages of another nature to be gained by an advance in this order, and such a proceeding may not only sometimes appear justifiable, but even very desirable, especially in cases where a force has to pass through defiles, debouch from mountains, etc.

The question is a more serious one when the distance between the heads of columns is still further increased, or the force is divided into several columns moving far apart. The danger of these columns being attacked and crushed singly by superior forces of the enemy before the others can come to its support, is all the more to be feared in this case, as no efficient and active unity of command, which alone can prevent such catastrophes happening, can be possible with such scattered forces, and no single column can, unless favoured to an extraordinary degree by ground, be expected to hold out by itself sufficiently long to enable others to come to its support. The advantage of marching in separate columns is then a somewhat closely circumscribed one, and is especially so when the country lying between the roads to be used by the different columns, is intricate or impassable.

The above considerations may be said to only literally apply

to marches in an advance or retreat. They apply nevertheless, though in a modified form, to flank marches.

The first consideration in every case that occurs, is the length of a column of route for one day's march on one road. Upon this the whole question may be said to depend. It mainly rests on the depths in column of route of the various regiments, etc., forming the force, and on their rate of marching or rather on the mean rate of marching of the whole column during a day's march. Taking the latter as averaging $22\frac{1}{2}$ kilometres (14 miles), the point to be determined is the size of the force that occupies $22\frac{1}{2}$ kilometres of road in ordinary column of route.

Any officer who is responsible for assigning, within the time required to complete this distance, additional troops to the particular section of any given road required for the movement of this column, without taking steps to reduce the length of the column by marching on a broader front, or some such measure, is guilty of a serious military blunder.

a. Depth of Columns.

The Table (pages 128-131) gives the *normal depths* of the columns of route of German troops on a war footing and fully equipped for the field. The following are the *data* upon which the calculations are made. The space occupied by a horse in the ranks is taken as 2·4 metres, but otherwise, 3·2 metres; by a two-horse carriage, from 8 to 9 metres; by a four-horse carriage, from 12 to 13 metres; and by a six-horse carriage, from 16 to 17 metres (pontoon waggons somewhat more). The intervals are reckoned as: for each carriage, 3 metres; for each company, or the second *echelon* of carriages of each battery, 8 metres; for each battalion, squadron, or battery, 16 metres; for each infantry or cavalry regiment, artillery or train division, or second *echelon* of carriages of each artillery division, 32 metres; for each infantry or cavalry brigade, 64 metres; and for the Division, 240 metres. Infantry are taken as three deep and marching in sections of 4 files, cavalry in sections of threes, artillery and trains by single guns or carriages, and the mounted officers and employés of the higher Staffs and administrative branches, together with the led and spare horses, by twos.

When marches are long, and both weather and roads are bad, the normal depths given increase very considerably, even when the discipline of the troops on the line of march is all that can be desired. And in passing defiles which necessitate the front being diminished, the same thing happens sometimes to an enormous extent. (*See Vol. I, page 225*).

A pontoon bridge is crossed by infantry in sections of 4 files or in files (threes), breaking step; by cavalry, two horses abreast and the men dismounted; and by artillery in single guns or ammunition waggons with intervals of 8 metres. Battalions maintain intervals of from 25 to 40 metres between each other, squadrons and batteries 8 metres, and cavalry regiments from 25 to 40 metres. These intervals may be increased at the discretion of the Engineer officer acting as bridge-commandant. Thus the depth in column of route of a large force passing a pontoon bridge, may be taken as increased by at least 25 per cent.

This temporary increase in the depth of the column finally results in a loss of time to the head of the column, if it halts in order that the broader front may be resumed and the tail close up to continue the march in the normal depth; but if the head of the column marches on without waiting, and no attention is paid to the increased depths in the formation of the troops, the tail of the column is late in arriving at its destination, thereby showing the extent to which the total depth of the column has been lengthened.

		a. Corps, regiments, etc., with led horses, hospital store waggons (in the case of batteries, the list section of battery carriages, in the case of pioneer companies all their carriages, except baggage and canteen waggons), and including intervals.	b Small arm ammunition waggons following in rear of brigades or advanced guards, etc.; and section of battery ammunition waggons.
<i>A. Corps, Regiments, &c.</i>		metres.	metres.
Infantry.	Battalion	282	20
	Regiment	892	60
	Brigade of 2 regiments ..	1,832	120
	Rifle battalion	282	45
Cavalry.	Squadron	162	..
	Regiment, (4 squadrons) ..	686	..
	Brigade of 2 regiments ..	1,419	..
	" 3 "	2,105	..
Artillery.	Field battery	284	140
	Field artillery division of 4 batteries	1,174	584
	Field artillery division of 3 batteries	887	444
	Horse artillery battery ..	305	140
	Horse artillery division of 3 batteries	950	444
	Small arm ammunition column ..	..	..
	Artillery Division of "ammunition" columns .. ..	..	..
Pioneers.	Pioneer company	111	..
	Divisional bridge train ..	306	..
	Corps " "	..	..
Trains and Administrative Departments.	Bearer company	211	..
	Field hospital.. ..	..	..
	Provision column .. ..	..	..
	Park carriage column ..	..	..
	Horse depôt .. ..	..	..
	Field bakery column.. ..	..	..
<i>B. A Force of Mixed Arms.</i>			
Infantry Division.	Staff and administrative departments	80	..
	2 Infantry brigades	3,664	240
	1 Cavalry regiment	686	..
	1 Field artillery division ..	1,174	584
	1 Pioneer Company	111	..
	Divisional bridge train ..	306	..
	Bearer company	211	..
	Divisional interval	240	..
Total Infantry Division..		6,472	824

c. Totals Columns a and b.	d. Regimental baggage (2nd echelon) (Staff and regimental baggage waggons and cañteen waggons), including intervals.	e. Totals Columns a, b, and d.	f. Carriages of administrative de- partments, trains and columns, including intervals.	g. Totals Columns a, b, d, and f.	h. Remarks.
metres.	metres.	metres.	metres.	metres.	
802	83	885	..	885	
952	261	1,213	..	1,213	
1,952	533	2,485	..	2,485	
327	78	405	..	405	
162	11	173	..	173	
686	83	769	..	769	
1,419	178	1,597	..	1,597	
2,105	261	2,366	..	2,366	
424	..	424	..	424	
1,758	34	1,792	..	1,792	
1,331	34	1,365	..	1,365	
444	..	444	..	444	
1,394	34	1,428	..	1,428	
..	..	..	556	556	
..	..	..	574	574	
..	..	..	2,880	2,880	
111	22	133	..	133	
306	11	317	..	317	
..	..	..	782	782	
211	34	245	..	245	
..	..	..	126	126	
..	..	..	567	567	
..	..	..	971	971	
..	..	..	339	339	
..	..	..	89	89	
80	61	141	117	258	
3,904	1,066	4,970	..	4,970	
686	83	769	..	769	
1,758	34	1,792	..	1,792	
111	22	133	..	133	
306	11	317	..	317	
211	34	245	..	245	
240	..	240	..	240	
7,296	1,311	8,607	117	8,724	

		^a Corps, regiments, etc., with led horses, hospital store wagons (in the case of batteries, the 1st column of battery carriages, in the case of pioneer companies all their carriages, except baggage and caissons wagons), and including intervals.	^b Small arm ammunition wagons following in rear of brigades or advanced guards, etc.: 2nd column of battery ammunition wagons
		metres.	metres.
Cavalry Division (6 regts.)	Staff and administrative departments	77	..
	3 brigades of 2 regiments each	4,258	..
	1 battery of horse artillery ..	305	180
	Divisional interval	240	..
Total Cavalry Division..		4,880	180
Corps, Artillery (regiment).	Regimental staff	24	..
	2 field artillery divisions of 3 batteries each	1,774	888
	1 horse artillery division of 3 batteries	950	444
	Bearer company	211	..
	Brigade interval	64	..
Total Corps Artillery..		3,023	1,332
Army Corps, Staff.	Staff	174	..
	Departments .. ..	..	..
Army Corps.	Army Corps staff and departments	174	..
	2 Infantry Divisions.. ..	12,944	1,648
	1 rifle battalion	282	45
	1 pioneer company	111	..
	Artillery staff	38	..
	Corps Artillery	3,023	1,332
Total Army Corps without columns, trains, or administrative departments }		16,572	3,025
Columns and trains.	Train battalion staff .. ..	..	..
	2 divisions of columns .. ..	..	..
	Corps bridge train .. ..	..	..
	Field bakery column.. ..	..	..
	Horse depot .. ..	..	..
	5 provision columns .. ..	..	..
	5 park carriage columns .. ..	..	..
Total Army Corps with columns, trains, and administrative departments }		16,572	3,025

c. Totals Columns a and b.	d. Regimental baggage (2nd echelon) (staff and regimental baggage wagons and caissons wagons) including intervals.	e. Totals Columns a, b, and d.	f. Carriages of administrative de- partments, trains and columns, including intervals.	g. Totals Columns a, b, d, and f.	h. Remarks.
metres.	metres.	metres.	metres.	metres.	
77 4,258 486 240	50 533 11 ..	127 4,791 496 240	72	199 4,791 496 240	
5,080	594	5,654	72	5,726	
24 2,662 1,894 211 64	11 68 34 34 ..	35 2,730 1,428 245 64	.. .. .. .. ..	35 2,730 1,428 245 64	
4,355	147	4,502	..	4,502	
174 ..	110 ..	284 ..	.. 259	284 259	
174 14,592 327 111 38 4,855	110 2,621 78 23 45 147	284 17,213 405 133 83 4,502	259 234 117 ..	543 17,447 405 133 200 4,502	
19,597	3,023	22,620	610	23,230	
.. .. .. .. .. .. .. ..	.. .. .. .. .. .. .. ..	.. .. .. .. .. .. .. ..	61 5,760 782 89 339 2,836 4,856 1,517	61 5,760 782 89 339 2,836 4,856 1,517	
19,597	3,023	22,620	16,850	39,470	

β. Rate of Marching.

With reference to what has been already stated in Vol. I. (*see* page 228) as regards the rate of marching of smaller or larger bodies of troops for shorter or longer distances, it only appears necessary to add here a few observations as being the result of experience gained in war. In war, it should be remembered, the choice of roads depends on many other considerations than that of merely looking to the maximum rate of marching of the different bodies of troops; there are many other circumstances which, though unfavourable in the highest degree, have to be faced, such as all kinds of weather, etc., and it is to difficulties of this nature we now propose to principally draw attention.

The following has been found to be the times taken to perform a $22\frac{1}{2}$ kilometre march:—

	On a good road and under favourable circumstances.	On a bad road and under favourable circumstances.	On a bad road and under un- favourable cir- cumstances.	Under very unfavour- able circum- stances.
A battalion of infantry or field battery	5 hours.	8 hours.	10 hours.	12 hours.
A regiment of cavalry or battery of horse artillery	4 "	6 "	7 $\frac{1}{2}$ "	9 "
A train, etc., column ..	6 "	10 "	16 "	20 "
An Infantry Division ..	6 "	9 "	11 "	14 "
A Cavalry Division ..	4 "	7 "	9 "	12 "
Add for every additional Infantry Division on the same road	1 "	2 "	3 "	4 "

The above figures represent the time taken by the head of the column of route in question only. If the whole column, after the head has reached its destination or alignment, has to be formed up or deployed either for action or to bivouack, to the time as given above, must be added in the case of any of the rear portions, the length of the column preceding it on the road—expressed in time. Thus, for instance, in the case of the tail of the column, the total time would be the time taken by the head *plus* the time taken to march a distance equal to the length of the whole column.

An Army Corps then (reckoned as two Infantry Divisions and Corps Artillery only), occupying some 20 kilometres ($12\frac{1}{2}$ miles) of road in column of route and leaving for the time all trains, etc.,

in rear, would, when advancing by one road, require from 12 to 20 hours, according to circumstances, to march a distance of $22\frac{1}{2}$ kilometres (14 miles) and deploy into line of battle. This then at once gives us the *maximum* force that can be moved by *one* road (the troops, etc., being at full war strength), if it is to at once engage the enemy or be drawn up in position ready for battle.

If, however, it is merely a question of an advance, and the component parts of the force remain *echeloned* along the road at the end of the day's march, at intervals corresponding to their respective depths in column of route, ready to continue the march on the following day, the total length of the whole force in column of route is no longer of the same importance. This, however, at once ceases to be the case when for any reason, the tail of the column has to deploy into alignment with the head, or other bodies of troops have to be temporarily inserted in it or join it—as for instance, would occur if several columns marching separately by different roads, had all to pass a certain defile which could not be turned.

In a case of this description, the time taken by the different columns to clear the defile from end to end, must be calculated from their respective lengths and rates of marching. The times of arrival of the leading troops of the different columns at the defile, can then be fixed with some degree of accuracy, and an estimate answering practical purposes made of how many troops can pass the given defile, in a day for instance.

γ. *Order of March of Combatants.*

By *Order of March* is here meant the order in which the troops follow each other in column of route, and the distances or intervals they occupy—in other words, the formation of the troops forming the column.

In this, as in other questions of a tactical nature, it is impossible to give any hard-and-fast rules, as the peculiar circumstances of each case require different arrangements. Certain general principles can, however, be laid down, any deviation from which can rarely be justified.

Firstly, the order of march must suit the order in which it

appears desirable the troops should deploy into line of battle from column of route.

Artillery as the arm which commences an action, and which requires a certain time to produce an effect, should therefore be, as a rule, *as far forward as possible* in the column of route. Artillery, however, from its very nature cannot actually form the head of a column, though, as in the case of cavalry, such a position best suits it for marching only.

When a force, again, is marching in the presence of the enemy and there is any chance of the latter being met with, precautions must necessarily be taken to prevent surprise. This is done by pushing forward advanced guards and sending out flanking detachments; in fact, by detaching small forces from the main body, which, inasmuch as they are more ready for action and further protect themselves by again pushing forward small parties, enable the main body to gain time if suddenly attacked. But by far the safest plan is to find the enemy, never lose the "touch" of his forces once obtained, rapidly report all his movements, and draw a veil, so to speak, round one's own. Cavalry alone can do this, and must therefore be thrown out both in advance and on both flanks. In the German Service this is done on a large scale by the judicious employment of cavalry in masses, *i.e.*, Cavalry Divisions.

The order of march of a Cavalry Division, as has been already stated at pages 8 and 27, requires the force in question to be divided into at least two principal columns (the two light brigades with a battery of horse artillery each). The heavy brigade (accompanied by the third battery of horse artillery, if there be one) follows some 4 kilometres ($2\frac{1}{2}$ miles) in rear, either behind one of the light brigades or on a road between them. The General commanding the Division gives no further instructions than those concerning the order of march; he assigns to each brigade the particular object to be kept in view, and always sees himself to the concerted action and mutual support of the whole force. All other arrangements are left to the Generals commanding brigades.

This does not exactly apply when a Cavalry Division is

detailed for some special duty confining its action to a narrow compass, and is obliged to move for the greater part by one road. In this case one of the light brigades (with one battery or all the artillery of the Division) would form an advanced guard, and the two remaining brigades follow at a distance of from 1 to 2 kilometres (reckoned from the tail of the advanced guard), as a main body. If there be any artillery with the latter, it would take post in column of route behind the leading regiment. If a detachment of infantry be temporarily attached to the Division for any particular purpose, it must invariably bring up the rear of the whole force on the line of march.

If from reasons of one kind or another, the reconnoitring and scouting duties of an army cannot be provided for by, and left to, a strong force of cavalry, the cavalry belonging to the Infantry Divisions (Divisional cavalry) situated nearest the enemy, must undertake the duty. The comparative numerical weakness, however, of the latter, and the fact that it is totally unprovided with any artillery, necessitate its being immediately supported by a force of the other arms, *i.e.*, the *advanced guard*, which, forming a detachment by itself under the command of an officer specially detailed for the purpose, comprises the greater part of the Divisional cavalry. The order of march of the advanced guard as well as of any flanking detachments that may be deemed necessary, is left to their respective Commanding Officers. As a general rule, the following troops of a Division would be detailed to form its advanced guard and provide for the scouting and reconnoitring duties necessarily entailed:—

The cavalry regiment, *minus* a portion (which at the most should never exceed a squadron), left with the main body for orderly duties, etc., and as a train escort.

An infantry regiment and, if it be considered advisable to have a comparatively strong force of this arm, the rifle battalion of the Division.

A battery.

A company or portion of a company of pioneers with, in many cases, the Divisional bridge train.

Half a bearer company.

The remaining troops of the Division (unless any detach-

ments are necessary to guard trains, etc.) form the main body which is not, as a rule, placed under the orders of any specially detailed officer. The General commanding the Division gives the order of march of the main body, and the distance to be observed from the advanced guard. This interval is intended to give the main body time to deploy for action without a check, should the advanced guard be attacked and forced to retire.

At first sight it would appear desirable then that the interval between advanced guard and main body should be equal to the depth in column of route, of the latter. This, however, is too mechanical an arrangement, and assumes, at any rate, that the advanced guard will be taken by surprise—a circumstance which cannot well occur if the leading cavalry are pushed sufficiently far to the front. A shorter interval must consequently be made to meet the case above supposed, and this has also the advantage of enabling the advanced guard to be more rapidly supported from the rear. The main body of the Division should therefore follow at a distance of, at the most, 2 kilometres ($1\frac{1}{2}$ miles). The following order of march of the main body is recommended.

The cavalry detachment.

The infantry regiment which, with the regiment detailed with the advanced guard, forms a brigade.

The Divisional artillery, unless with the certainty of an engagement, it is placed behind the leading infantry regiment of the main body.

The second infantry brigade.

The remainder of the pioneers.

Half a bearer company temporarily accompanied by requisitioned carts or waggons filled with straw for the transport of wounded, when an engagement is anticipated.

If two good parallel roads sufficiently near each other are available, the Division would march in two columns, each consisting roughly of a brigade. Circumstances then decide whether these columns should be preceded by a *common* advanced guard, or each column furnish its own, as well as the distribution to the two columns, of cavalry, artillery, pioneers, and bearer companies. Each column is placed under the orders

of a single commander who issues his own instructions independently on the order of march. The Divisional Commander sees that the proper connection between the two forces is maintained.*

When a Division is advancing, but cannot be said to be in the immediate presence of the enemy as, for instance, is the case when one Division is following another on the same road, the precautions taken against surprise, etc., need hardly be of so complete a character, being generally confined to sending out flanking parties, and the order of march may then be arranged so as to spare the troops all extra fatigue.

It has been already pointed out in Vol. I., page 229, that cavalry and artillery naturally move faster, even at a walking pace, than infantry. This being the case, the whole of the Divisional artillery covered by the available cavalry, might march at the head of the Division, which under these circumstances, would not be called upon to form an advanced guard, but could follow in the *Ordre de Bataille* of the dismounted troops. By this arrangement the cavalry and artillery are not obliged to check their natural rate of marching, but can go ahead at the pace that suits them until brought up by the tail of the Division in front, and then halt and wait for the leading troops of their own Division to come up. There cannot be said, of course, to be any real advantages to be gained by this order of march, unless there be a considerable interval between the two Divisions advancing by the same road.

In an advance with the absolute certainty of an engagement, this interval is naturally very slight, and when both Divisions belong to the same Army Corps, the Corps Artillery, as a rule, marches between them. The order of march of the rear Division must in this case be arranged to facilitate its deployment for battle, and this takes place, as a rule, either to the right or left of the leading Division. Bearing this in mind, the cavalry regiment should lead the way, next would come an infantry

* It is a mistake to order both columns to maintain communication with each other; this generally results in too much or too little being done. It is better to order *one* of the columns to keep up communication with the other (the column accompanied by the General commanding the Division).

regiment, the Divisional artillery, the remaining infantry regiment of the brigade and the bearer company, and then the second infantry brigade. The positions assigned to the pioneers and Divisional bridge train depend on circumstances. If the Division can advance by two roads, the order of march on each would be made in accordance with what has been already stated.

The usual order in which an Army Corps advances by a single road is—one Division in front, the Corps Artillery next, and then the remaining Division.

It depends now upon circumstances whether the advanced guard of the leading Division sufficiently covers the advance of the Army Corps, or whether the latter should form one itself. If this be deemed necessary, the leading Division would have to furnish the following troops to form it :—

The cavalry regiment.

An infantry brigade.

The Divisional artillery (or at the very least one-half).

The pioneers.

The bearer company.

The General commanding the leading Division, in this case takes command of the advanced guard, and gives his own orders on its order of march. The remaining brigade of the leading Division now forms part of the main body, and should be placed at the head of the other Division in the order of march given out by the General commanding the Army Corps. The interval between the advanced guard and main body should be from 2 to 3 kilometres ($1\frac{1}{2}$ to $1\frac{3}{4}$ miles). The question of placing the Corps Artillery either between the two regiments of the leading brigade of the main body or immediately behind it, is one that depends on the prospect of an immediate and serious engagement, according to its greater or lesser degree of probability. Next follows the second Division. Its order of march is left to the Divisional General in command, and is drawn up in accordance with the rules and principles already explained.

If the Army Corps is advancing by two roads, one road would, as a rule, be assigned to each Division. The Corps Artillery would be given the best road unless, with a view to

enable it to be more effectually employed in an impending engagement, there are reasons to the contrary; the General commanding the Army Corps fixes the position it should occupy in the order of march of the Division it accompanies. In other respects the Divisional Generals draw up the order of march of their respective Divisions, forming each an advanced guard, as in the case of the advance of an Army Corps in separate columns, a single advanced guard can rarely answer the purpose.

If a Cavalry Division is attached to the Army Corps, it should if not entrusted with any special duty, be pushed as far to the front as possible. It thus performs the duties of an advanced guard in the truest sense of the term. Nevertheless, in this case, as indeed when the heads of the advancing Divisions or Army Corps are covered by independent bodies of cavalry, it does not by any means follow that further precautions against surprise are quite unnecessary. Officers' patrolling parties of Divisional cavalry, for keeping up communication with the cavalry in front, investigating the resources of the country, reconnoitring roads, etc., are, at the same time, extremely useful in protecting the columns of all arms against the enterprises of isolated or small parties of the enemy. The forward Divisions, etc., again, must adopt a formation so as to be able to afford support, if necessary, to the bodies of cavalry in front. The extent, however, to which weight may be attached to this principle, depends on the military situation at the time, and in a very great measure on the distance separating the bodies of cavalry in front from the advancing columns.

Though reference in this subject has hitherto been confined to an advance only, the principles and rules that have been laid down and explained apply equally to a retreat or flank march, so far, at any rate, as our relations with the enemy are concerned. In a retreat, it may be added, the rear guard is given a strong force of artillery, if its object is to gain time by engaging the enemy, and increase the distance between rear guard and main body; this distance, however, need not exceed the depth in column of route, of the latter. (*See page 184*).

δ. *Order of March of Trains and Baggage Columns.*

Trains (under the general heading of which are included ammunition columns) considerably add, as does indeed regimental baggage, to the difficulties met with in making judicious arrangements for the march. The fact indeed speaks for itself, if we only bear in mind that the combatant portion of an Army Corps (including the spare horses, and ambulance and ammunition waggons which, according to the rules of the Service, accompany the troops in action) occupies much about the same depth or length of road in column of route, as the trains, ammunition columns, and heavy regimental baggage (which does not accompany the troops in action) together. When active operations are being carried on with comparatively small forces, covering a considerable extent of country much intersected with good roads, the case is an easy one to deal with. But it is a very different matter when, as in the concentration of an army for battle, troops have not only to be massed in a comparatively confined space, but must in addition be in a position to form line of battle with the greatest possible rapidity. Under such circumstances, something like double the amount of troops may, in fact, march by the same road, if they are only accompanied by the transport absolutely necessary for fighting purposes. It must not be forgotten, again, that when troops are advancing to an engagement, they must be followed by a certain number of field hospitals and ammunition columns, and that in many cases it may be very desirable to have certain portions of the provision trains at hand as well. At any rate, certain portions or lengths of the roads by which the troops can reach their positions in line of battle, must be looked upon as denied the exclusive use of combatants only, and this at a moment when every available road must be turned to account by the latter. To be constantly thinking of baggage and trains, and to see that the movements of these *impedimenta*—which on an occasion like this are found to be so embarrassing—do not in any way hamper or cross on the line of march the fighting portions of an army, are no small sources of anxiety to those who are responsible for the necessary arrangements.

The difficulty has been very simply got over before now, by keeping all *impedimenta* as far as possible in rear—so far indeed, that in some cases, neither could ammunition be replenished nor supplies issued to the troops within the following day, and some corps, etc., were separated for weeks together from their regimental baggage. Convenient and simple though such a proceeding may appear at first sight, it is one completely ignoring the necessity that has been fully recognised of providing all large bodies of troops with trains of every description, and all corps and regiments with transport to enable them to preserve their interior economy in the field. Were it indeed possible or practicable, without otherwise incurring serious inconvenience, to dispense with all these things for any length of time, it would evidently be far wiser not to take them into the field at all. This question must, however, be considered as one definitively settled in peace as a matter of organisation, and as the result of experience gained in past wars; to make the best use of this organisation in war, is the duty of those who have to make the necessary arrangements.

It cannot, however, be expected from the latter that troops are invariably and always to be in immediate possession of all their wheeled transport, or that as a precaution against any, even in the remotest degree, possible failure of ammunition, the 10 ammunition columns of the Army Corps are all to invariably closely follow the troops. Rather must circumstances that are liable to daily change, be dealt with by arrangements varied in character to suit time and place, and calculated on a judicious compromise between all the requirements that have to be satisfied. But when dealing with such antagonistic conditions, there must never, on any account, be any doubt on the question of making every consideration give way to that of keeping the troops in readiness for action. It would, however, be exceedingly wrong to carry this principle too far and keep troops constantly in readiness for battle, to an extent that might reasonably be said to be beyond what is called for or meets the requirements of time and place, simply with a view to be *always* ready for action, even though it be not necessary. By so doing, troops would be worn out uselessly and before they were required to act. They

appear much less encumbered without baggage, it is true, and undoubtedly are so for the time being; but they lose at the same time their manœuvring and fighting powers at an alarming rate, and it is to preserve and maintain such essential qualities, that they are accompanied by the wheeled transport in question. The real interests of the troops are then complied with, and it is, at the same time, a proof of judicious arrangements being made for the march, if corps and regiments are, as a rule, every evening in full possession of their regimental transport, and the trains are also always sufficiently near to enable them to be supplied with any deficiencies.

If the "touch" of the enemy has been gained, or it is a question, as in the case when forces are marching into positions for a battle, of diminishing as far as possible the depths of the various columns, everything that is not absolutely necessary for the coming engagement, must at once be eliminated and left in rear. Consequently, troops in such cases would only be immediately followed by their *spare horses* and *ambulance waggons*, batteries by their *first echelon of ammunition waggons*, and pioneers by their *bridge* and *implement waggons*.

Small-arm ammunition waggons may sometimes accompany the troops to which they belong; but as a general rule it is better that they should be formed in a body and follow, together with the second *echelon* of battery ammunition waggons, immediately in rear of, and well closed up on, a large tactical unit (advanced guard, brigade, or Division). All other staff and regimental transport (forming the heavy baggage or *grosse Bagage*) should then follow in the order corresponding to the order of march of the staffs, regiments, etc., to which it belongs, at a proper distance from the tail of the column.

If more than a Division is marching by the same road, the *grosse Bagage* belonging to it may, if there are no tactical reasons to the contrary, follow in the interval separating the Division from the next combatant troops that follow. To allow all wheeled transport to immediately follow the corps and regiments to which it belongs, is only justifiable when meeting with the enemy is quite out of the question, and the Division, etc., moving from one rayon of cantonments to another, is only tem-

porarily formed for the purpose in column of route, and does not appear to require any further *practice in marching in the presence of the enemy*. But if the force in question is to bivouack in a tolerably compact formation at the end of the day's march, the whole of the *grosse Bagage* should follow the troops in a body at a short distance in rear of the column.

When an engagement is expected, a portion of the *ammunition columns* must follow sufficiently close to enable ammunition to be replenished, if necessary, at certain points of the scene of the encounter *during* the action. This, however, may be looked upon as a case which only exceptionally occurs, and it may, therefore, be safely assumed that the wants in this respect of an Army Corps are fully provided for, if the combatant troops are immediately followed by about one small-arm and two artillery ammunition columns at a short interval, *i.e.*, *preceding* the *grosse Bagage* of the troops, when there is a certain prospect of an engagement. The *grosse Bagage* indeed cannot rejoin the troops until the action has been decided beyond all doubt. For reasons of much the same nature, some *field hospitals* (generally three or four) would immediately follow in rear of the combatant troops, and in front of the three ammunition columns above referred to,

At a greater interval, but sufficiently near nevertheless to be able to rejoin the troops in the course of the evening or in the early part of the night, would follow: *two ammunition columns, three or four field hospitals, and one or two provision columns or park carriage columns*.

The *grosse Bagage* together with the ammunition columns, trains, and administrative services already referred to, may, notwithstanding the peculiar way in which they may have to be distributed, be classed under the heading of "*First Echelon of Trains and Columns*." It may be taken as a rule to be able to supply all the medical and hospital requirements of the force even after very severe fighting, to provide provisions for one day, and to replenish the ammunition that has been expended.

The remaining *ammunition columns, provision columns, and field hospitals*, together with the *pontoon column* and the *horse dépôt*, may be classed under the heading of the "*Second*

Echelon of Trains and Columns." These which cannot be said to form, strictly speaking, an integral part of an Army Corps with, at any rate, each unit complete in itself, need only follow at a distance of a short day's march.

The composition of both *echelons*, just as every other kind of distribution of troops, must be always liable to change. For instance, an ammunition column returning empty after having replenished the ammunition that has been expended, ceases at once to belong to the first *echelon*, and would be temporarily replaced, when returning to fill up from the columns of the field ammunition park, by a column taken from the second *echelon*; the latter would have, in this case, to make a two days' march on the day in question, unless the first *echelon* happened to be halted on that very day. Similarly the pontoon column and the horse dépôt may, if necessary, be brought forward; and such field hospitals as have temporarily ceased to belong to the first *echelon* by reason of their becoming fixed hospitals for the time, or any empty provision columns, etc., may also be replaced by others from the second *echelon*.

The *Field Bakery Column* is rarely seen in a body when on the march; some of the men belonging to it (bakers and butchers) are attached to the Field Commissariat Departments (*Feldproviantämter*), and especially to that of the advance guard or leading Division. The remainder generally follows with the second *echelon*, where it may be employed in immediate connection with the provision columns, at the discretion of the officer commanding the train battalion.

It is very desirable, especially when marching along *one* road, that there should be a commanding officer appointed to each *echelon* in question. The officer commanding the train battalion appears well fitted by his position to take permanent command of the second *echelon*, but the first must be placed under the orders of a field officer appointed by the General commanding the Army Corps, or, should no field officer be available, under the orders of the officer commanding the division of ammunition columns marching in the first *echelon*.

The second *echelon* is, unless unexpected changes in the direction of the march contemplated have to be suddenly made,

generally speaking, able to reach the destination assigned it in the "dispositions for the march" without hindrance or check, and has only then to be prepared to at once forward to the first *echelon* any of its component parts, on requisition. In the case of the first *echelon*, however, it is often assigned points by the "dispositions," where the different fractions composing it must halt till further orders. Such points would then be chosen, as in the case when the *echelon* in question must be temporarily kept in rear owing to an engagement coming on, as enable the trains, etc., to be parked and afterwards proceed without check or delay in different directions; these conditions are best fulfilled by places where roads intersect or meet and there is plenty of open space in the immediate vicinity. As a precaution against things taking an unlucky turn in the coming engagement, trains, etc., must never be allowed to pass defiles until they are absolutely required. The places where they are halted must however be indicated to the troops whenever such information would be required by them, as for instance, in the case of the positions of ammunition columns.

There only remain now the questions of affording the trains, etc., efficient *protection*. Every detachment made for this purpose not only weakens the combatant troops, but breaks up the units in which they are organised, as it is out of the question giving whole battalions or squadrons to escort each train detachment on the march. Consequently, as the men of the trains and columns are armed and generally able to keep off any small parties of the enemy, a special escort is only required as an exceptional case. The best protection may be said to really consist in judicious arrangements for the march, in the efficient performance of all reconnoitring or scouting duties, in maintaining a strict discipline and order of march in the various trains, etc., and finally in successful operations against the enemy.

In the case of a retreat through a country in a state of insurrection, the trains, etc., which in this case, would precede the fighting troops, must certainly be provided with a special escort or covering force (infantry for their immediate protection and a respectable force of cavalry to reconnoitre). Under such circum-

stances the trains and columns must be pushed ahead as far as possible ; those that are immediately required to supply the troops, must halt at or near points on which the latter are to march, and, having supplied their wants, at once rejoin their respective *echelons* either by a night march or a double days' march.

2. THE OBJECT OF EACH DAY'S MARCH, AND THE BEST USE OF THE ROADS AVAILABLE.

It would be a great mistake when drawing up orders for a day's march, to take the march as constituting in itself a distinct and independent act or performance in the operations of war, and one that should be dealt with solely as regards itself. For, as the positions occupied by an army or force at the end of a day's march, must necessarily directly affect the arrangements that are to be made for the movements contemplated on the morrow, the fact that the orders for to-morrow are only the preliminary of those that will have to be issued on the following day, must never be lost sight of. It never does to live from hand to mouth, so to speak, in this question ; the turn that things are taking or likely to take in the military situation, must be maturely weighed and considered, and all arrangements made to meet as far as possible the march of events. These considerations are of equal importance, both in determining the *object of each day's march*, and making the *best use of the roads available*.

First comes the military situation at the moment, viewed both in a strategical and tactical point of view, often making it necessary to attempt and reach certain points or take up a certain position in a given time. As a rule, an enterprise of this description can only be accomplished by *several days' marching*, as all strategical operations cover a considerable extent of country, and require very much more than one day for their execution. If the army or force in question is in immediate contact with the enemy, the *daily marches* to be performed and the roads by which they are to be accomplished, mainly depend on *tactical* considerations in connection with

the military situation at the moment. But if the enemy is not in the immediate neighbourhood, tactical considerations may, for the time being, be viewed in a secondary light, and attention should then be chiefly paid to maintaining and preserving the fighting strength of the troops. Bearing this in mind, the following are the points which deserve special care:—marches should not be too long, and arrangements should be made for intermediate halts; the troops should be adequately housed and fed at the end of each day's march; outpost and scouting duties should not be more severe than circumstances require; and finally, care should be taken that in arranging each day's march, any alterations that may be necessary in the direction of march on the morrow, are foreseen and provided for.

In estimating the time required to accomplish a given distance, the length of a day's march should not, unless in a case of emergency, be taken to exceed an average of $22\frac{1}{2}$ kilometres (14 miles). In fact, in the case of large bodies of troops, this is very severe marching indeed to be maintained for any time without a halt, and can only be kept up by an army or large force, as a whole, if the troops are allowed every facility for reducing fatigue to a minimum. With this object, troops should march in separate small columns, thus avoiding the closing up and opening out that so constantly take place in a large column and entail extra fatigue. Again, it cannot be said to be always necessary for a large body of men to be assembled together before, during, or after the march; on the contrary, as long as the enemy is not in the immediate neighbourhood, it is far better to assign to the separate portions of the force, different points to be attained situated in alignment and connected by good communications, and consequently give *different roads* to each of these separate columns. How far such a proceeding is feasible, is of course chiefly dependent on the total strength of the whole force in question as compared with the *number* of roads available, and the extent to which these are *practicable* for the different arms.* The best

* Compare Chapter VIII, both as regards this point and the question of supplementary roads by temporary passages (*Kolonnenwege*).

use that can be made of all the available roads of the country, which is the only sure means of confining the hours during which troops are kept on their legs, to the early part of the day,* affects the welfare of the whole force concerned, and materially improves its marching qualities as a body.

In dividing the total distance that a force has to accomplish in a given time, into day's marches, it scarcely answers the purpose to fix the latter by the somewhat mechanical process of ascertaining the average length of each day's march from the number of days available. On the contrary, it often happens that a comparatively long day's march may on a certain day, with advantage, be compensated for by a short one on the following, when circumstances show such an arrangement to be desirable; as for instance, when passing a tract of country that in no way favours the march of an army (extensive forests, long defiles, ranges of mountains, etc.), pushing on to seize a defensive position, anticipating the enemy at a point or points of strategical importance, endeavouring to ensure better quarters or supplies, etc., etc. The question of obtaining a good water supply alone, has often, before now, been considered a sufficiently good reason for lengthening or curtailing the length of a day's march.

It may be necessary in certain cases to divide the day's march into two portions. This is an arrangement which must, for instance, be made to apply to certain portions of a large force marching in two separate columns, and using two roads which converge and form one. One of the columns has, in this case, to wait for the other to pass. But instead of postponing the hour at which the rear column is to march off from its quarters or bivouack, it is, as a rule, a better plan to order it to march at the usual hour and halt at the junction of the roads; here the troops may be allowed to rest and cook dinners, and when the other column has passed and the road is clear, the march may be again resumed.

If a change in the direction of the march on the following

* The hours of marching off are, putting aside cases when troops have to arrive at their destinations at stated times, made to vary according to the time of year, the weather, and the way in which the men, etc., are housed. An earlier start can be made from bivouacks than from cantonments.

day appears more than probable, the various forces should be so distributed as regards cross roads and communications, as to enable them to march off either in the original or new direction, without having to make any considerable détours, or any material alteration in their formations.

If the army or force is in close contact with the enemy, the presence of the latter may often directly affect the choice in the marches to be ordered, inasmuch as it must frequently be first of all decided whether he is to be compelled by force to quit certain positions or points where he has established himself, and which we either intend to occupy, or beyond which we wish to continue our advance. Taking again the case of a retreat, an army or force may be often obliged either to continue to retire for a greater distance than was originally intended, or turn and show fight to avoid being pressed any further by the pursuing enemy.

Whether in either case an engagement is to be risked, or whether we are, when retiring, to simply leave the position to be attained by the retreat of our forces as a question to be decided at the pleasure of the enemy, must always depend on circumstances. In most cases the General Commanding-in-chief issues his orders on the subject. These, in order to avoid all uncertain action in the arrangements of his subordinate leaders, and prevent any crossing or collisions between the various columns on the march, should give, in addition to the points that the latter should endeavour to attain, certain lateral limits to the movements of each column (so far as the whole force has been divided into columns by the General holding the command in question); but with these, the orders for the marching, halting, quartering, and even feeding of the troops, would be so intimately connected, that in fact, not only the roads, but also the towns, villages, etc., situated on or near them, would have to be assigned to the troops forming the various columns.

To each of the latter, there would consequently be given a strip of country, so to speak, running in a direction parallel as far as possible, to that of the general movement being executed, and within this the troops forming the column would have the exclusive right of using the roads, quartering on the inhabitants,

and even requisitioning supplies, but at the same time would be called upon to provide for all patrolling and outpost duties, maintain order, etc., within the rayon in question. During active operations the limits of the latter would be practically determined and fixed by the roads intersecting the country; for (putting aside battles, and even in these, the bulk of the forces taking part arrive on the spot by the roads of the country), *marching* practically then takes place day after day, and everything else must for the time being, be made of secondary importance.

It would be wrong as a rule to take a main road as marking the line of demarcation between two such rayons, even though the road in question be distinctly assigned to the use of the troops in one of these only; for all by-roads and lateral communications in the immediate neighbourhood of a high road belong, so to speak, to it. Rivers or streams, wooded tracts, ridges or chains of hills, in fact all features running in the general direction of the movement, and offering in themselves an obstacle or impediment to the march of troops, form much better natural lines of demarcation in a large tract of country over which an army or force is to pass.

By choosing these as forming natural limits between each strip of country, it would rarely happen that any practicable road were not taken advantage of.

The subordinate leaders have next to redivide the country in the rayons assigned them by the Commander in chief, among the forces they command.

It would be absolutely impossible in the case of a large force for a single authority, *i.e.*, the Commander in chief, to undertake all the detail connected with this—that is, draw up all the necessary arrangements for marching in separate columns on points more or less connected with each other, and make at the same time the best use of the roads of the country. This can, in fact, only be carried out by the strict application of the principle of the division of labour, by which all parts of the military machine do their separate share of the work, and co-operate with the leading or directing power, in attaining the common end.

The authority of the General commanding all the forces

concerned is only called upon to act in the matter of issuing detailed orders, when there appears a possibility of one column interfering with the movements of others; as for instance, when a certain defile has to be passed by more than one of the latter, or when it is impossible to avoid one line of march crossing another, etc., etc.

In the first case, the hour at which the leading troops of each column are to be in readiness at the commencement of the defile, must be stated in orders. Another plan has sometimes been proposed, and that is—to fix the hour at which the tail of each column must have cleared the defile; but to carry this out in the case of a column following in rear of another, becomes next to impossible in the case of the former, or at any rate, can only be carried out by enormous exertions on the part of the troops, as soon as the leading column ceases from one cause or another, to be punctual in its movements. Besides, it is evident that when the order fixes the hour at which the head of the second column is to be in readiness to enter the defile, the leading column is at the same time informed as to when its tail is expected to have cleared it. A careful estimate of the time taken by each column to clear the defile in question, is as necessary in one case as the other.

A crossing in the lines of march must not lead to a *crossing of the columns* on the march. This is a matter to which attention cannot be too strongly drawn, though it might hardly be thought necessary to counsel precautions against mismanagement of such a glaring and self-evident nature. It is clear, in fact, that the loss of time entailed on one column or part of a column that is obliged to halt, is at once given by the length of the other column that continues to move on, and its rate of progression. If both columns are pressing on, the arrangements which cause them to cross each other on the march—and it may possibly happen at a moment when they are deploying into an alignment for battle—can only be considered faulty beyond all measure.

Every consideration that would appear in any way to justify an order entailing such a mishap, must at such a moment be put aside. It would be just as reasonable, indeed, at a critical moment like this, to bring a corps or regiment that was

marching far back in the column, to the front, and for this purpose cause all the remainder to halt, merely for the sake of having that particular corps or regiment to lead the way.

It is sometimes next to impossible to prevent the lines of march of two columns crossing each other. After a decisive battle has been fought, and especially when the reserves have been engaged, the troops may easily find themselves, at the close of the engagement, occupying positions alongside each other on the ground, very different from those they previously occupied alongside each other on the march. Before continuing the advance on the following day, it must therefore be decided whether the troops in first line are to be left in the order in which they stand on the ground, in which case the lines of march of their respective baggage, trains, etc.—in a word, their communications—must cross each other in rear.

When such an alternative has to be settled, it may be said to be almost invariably better to revert to the original order in which the troops in first line were marching before the action, and this cannot be done without a certain amount of crossing in the lines of march. It does not follow, however, that the columns themselves should cross when on the march, for care must be taken that the hours of marching off are so ordered that no column when on the march, is obliged to halt because its line of march is crossed by another. The inconvenience of such an occurrence may sometimes, to a certain extent, be avoided by fixing the point of crossing of the lines of march, near the bivouacks of one of the columns, or place where it is to be assembled in the *rendezvous* formation. It can then cross the line of march of the other column in this formation,* or in something like one-tenth of the time, and only cause it to make a comparatively short halt.

If these considerations are ignored and the necessary precautions neglected, the troops suffer the consequences in being unnecessarily fatigued whilst kept on their legs on the roads during long delays, in addition to which very disagreeable disputes are almost certain to arise between the officers commanding the different columns, as nobody in such cases cares

* This of course assumes the ground on either side of the road to be open.

of his own free will to quietly yield and allow another to continue his march. Crossings in the line of march that are unavoidable must consequently be foreseen, and all evil consequences avoided by the most careful arrangements of those in superior authority.

3. PRECAUTIONS AGAINST SURPRISE, ACCIDENTS, ETC.

Reference has already been made, when dealing with the strengths and composition of columns, to precautions that have to be taken on the march against surprise, the sudden approach of the enemy, etc., etc. Allusion was made at the time, to the wide field of action of cavalry, to the formation of advanced guards, to flanking detachments, etc. The detail of all such precautionary measures must be left to the independent action of the different officers in command; they must be informed of the object and design contemplated by the movement that is being carried out, the order of march of the main body, and all that is known or conjectured as regards the enemy.

It may, however, be often very desirable in addition to, and independently of, such measures, to order scouting parties under officers to be sent in certain directions with the express purpose of gaining information which the usual precautionary measures against surprise, etc. do not appear to give. In some cases, reconnaissances may be even made on railway engines.

Those in supreme authority must not lose sight of the different conditions which exist between precautionary measures against surprise, etc., when on the march, and similar measures when halted. The importance of this is at once seen in the question of relieving the troops employed on outpost or detached duty for such purposes, which had always better be done before commencing a fresh march, or in the morning, than when a march is completed, or in the afternoon or evening. If it were done the other way, *i.e.*, inversely, there would always be a certain risk of suddenly interrupting for a time the advanced troops in following up any information or insight they might have been able to gain of the enemy's forces, etc. during the march, and which later on is, as a rule, anyhow, stopped by night. In addition

to this, the march on one day often *begins* under circumstances very different from those under which the march on the preceding day was made. With a change in the aspect of affairs, less harm is done by a change in the executive.

In marching in an unknown country it is very often advisable, especially when moving through tracts where it is very difficult to reconnoitre the way, such as wooded districts, etc., to employ *guides knowing the country*. Maps do not always show roads and communications in a wooded country with sufficient accuracy to make mistakes impossible. In one's own or in a friendly country, to procure and make the best use of guides is attended of course with little or no difficulty; indeed, the services of even mounted men can nearly always be procured. But in an enemy's country any assistance of this kind from the inhabitants of their own free will, must never be reckoned on, and it is sometimes even impossible to obtain the class of man required even by forcible means, from the very fact that there are none to be found. In using, however, a guide belonging to a hostile population, care should be taken that he is always strictly watched and guarded during the time he is in any way required, so as to at once detect and punish any intentional attempt on his part to mislead. In consequence then of the frequent opportunities that might be given a guide, of suddenly making his escape, were he mounted, he must be made to walk on foot, and as a matter of choice, should be held bound by a rope.

Guides of this description are consequently quite out of the question in the case of detachments of cavalry pushing rapidly ahead to reconnoitre; and if the most advanced parties of cavalry must, therefore, find their own way unassisted, they can easily, having done this, furnish guides for the columns following them, once the order is given and the necessary arrangements are made for them to do so.

It matters little or nothing of course, of itself, whether a column of route is formed *right in front* or *left in front*, as in

deploying into line of battle, forming up in the *rendezvous* formation, or for bivouacking, it is of no importance whether a column has marched right in front or left in front. But the case is different when troops have to *march off* from their bivouacs, from a *rendezvous* formation, or from a formation taken up as a preliminary to an engagement; for in such circumstances, especially when time is of any importance, the troops should march off from that wing which is nearest the line of march to be followed.

The same applies as much to large bodies of troops as to the small bodies which together form them; thus, in the case of a Division, it may, under certain circumstances, be advisable for one brigade to be marching right in front, and the other left in front, if such an arrangement can be shown to carry with it any advantages of a tactical nature. Any gain of time must be looked upon in this light.

If there are no particular reasons for marching off in one formation more than the other, it is well to alternate the arrangement from time to time, so that the same troops do not invariably find themselves bringing up the rear. The tail end of a column is, in fact, the most tiring and disagreeable position for troops on the march, and the desirability or even the necessity for changing places or relieving the troops on the march, is therefore self-evident. A favourable opportunity must, however, be chosen to make these changes, as otherwise, certain inconveniences connected with such a proceeding would soon be felt. It would, for instance, be very injudicious to make the change in question at the end of a day's march, when all the troops forming the column were *echeloned* along the road, either in bivouacks or quarters, for a distance corresponding to the depth of the column. To bring to the front troops that are at the moment bringing up the rear of the column, would entail on them a severe amount of additional marching, and they would certainly much sooner prefer to remain at the tail of the column with all its disadvantages, instead. Changes of this description should be made, as a matter of choice, when the troops forming the column occupy or are aligned in the same bivouacks, or when a change in the direction of march is made after an important

engagement, etc.—in a word, when a favourable opportunity for doing so presents itself.

4. FORCED MARCHES.

The average day's march of a large army during a movement of any duration which does not include any long periods of rest, rarely exceeds 15 kilometres (10½ miles), and, as a rule, may generally be taken at somewhat less. This includes a halt every now and then for a day at a time. If this average be exceeded, the movement may be looked upon in the light of *forced marches*. Without the use of railways, from which, indeed, seeing the enormous size of modern armies, assistance can alone be expected, forced marching can only take place for short periods, and then only by portions of an army at a time.

With a view of obtaining the highest results in this particular question,—which in itself is perfectly legitimate—attempts have been made before now by military experts to arrive approximately at some conclusion, by establishing certain theories founded on a somewhat arbitrary supposition of the relations that exist between the amount of work that men or horses are capable of, and the rest they require, and thence deducing certain rules for general application. These ideas have, however, now been completely abandoned. We must first—in each case that occurs—ask ourselves the question whether a forced march, *i.e.*, one that exceeds the average day's march, is absolutely necessary, how far and to what degree such forced marching is justified or called for by the military situation at the time, and whether the object to be gained is fully worth the expenditure of fighting power inseparable from an undertaking of the kind. Once the case is perfectly clear, forced marches may be ordered, but they must be energetically carried out, and nothing neglected that may in any way spare fatigue on the part of the troops. This is best done by using the best roads available, providing good accommodation and liberal supplies, and causing the packs of the infantry to be carried for them.

There is, however, even under the most favourable circumstances, always a certain limit imposed by nature to the strength

of man or horse, which cannot be exceeded without reducing troops to a condition utterly unfit for fighting, brought about by the reduction in numbers caused by the weak falling out and the total exhaustion of the strong.

Let us first see what may be considered as the maximum distance that can be got over in a day, *i.e.*, in the course of 24 hours, taking the case of the best time of the year (spring or autumn), good weather and a start in the morning after an undisturbed night's rest.

In the case of *cavalry* or *horse artillery* only, if a start be made at about 6 o'clock in the morning, a distance of some 30 kilometres (18½ miles) can be got over by 11 o'clock in the forenoon. A halt till 3 o'clock in the afternoon next enables dinners to be cooked and eaten, and horses to be fed and watered, after which another stage of some 20 kilometres (12½ miles) may quite well be got over by 7 o'clock in the evening. This gives a total distance of some 50 kilometres performed by the main body in 13 hours, and if the march is in the presence of the enemy, a far greater one in the case of those who have in addition to perform scouting and outpost duties. None but cavalry in hard condition can, however, be expected to make marches of this description, and then only from time to time. To order the march to be again resumed at midnight, *i.e.*, after a rest of some 5 hours, is a proceeding that can only be justified in cases of great emergency. But if it be determined on, an additional distance of some 30 kilometres may be got over by 6 o'clock on the following morning, making the total distance marched in *one day*, or 24 hours, some 80 kilometres (50 miles). That the total distance thus performed in the time given, may be otherwise divided into stages, according to circumstances, and that a march of the kind cannot be immediately repeated, is of course equally clear. Cavalry that have been marching from midnight to 6 o'clock in the morning, after the fatigue on the preceding day (having done 50 kilometres from 6 o'clock in the morning to 7 o'clock in the evening), cannot possibly undertake another march of 30 kilometres in 5 hours, without resting, and feeding and watering their horses. It will generally be found, in fact, that on the whole a greater distance can really be

got over in several days, by ensuring the troops as much as possible their night's night.

Infantry can, under favourable circumstances, and starting at 6 o'clock in the morning, get over some 20 kilometres ($12\frac{1}{2}$ miles) by 10 o'clock in the forenoon. After a rest of about 4 hours to cook and eat dinners, it is quite possible to march an additional distance of some 15 kilometres ($9\frac{1}{2}$ miles) between the hours of 2 and 6 in the afternoon. This gives a total distance of 35 kilometres ($21\frac{1}{2}$ miles) for the 12 hours of the day. If the march is again resumed at midnight, 15 kilometres may be expected to be done by 6 o'clock on the following morning, giving the total distance marched in the 24 hours as 50 kilometres ($31\frac{1}{2}$ miles)—a march which, however, cannot be immediately repeated.

It would be a mistake to suppose that when the days are long, the maximum distance that can be marched in 24 hours is greater than when the days are short; for in the former case the heat generally accompanying long days, must not be forgotten as having an exhausting effect on both men and horses.

We may therefore take 80 and 50 kilometres (50 and $31\frac{1}{2}$ miles) in *one day* (or 24 hours) as about the *maximum effort* of mounted and dismounted arms respectively, under favourable circumstances. If the march after this is to be resumed, a longer rest than usual must be allowed. Now even restricting this to 3 or 4 hours' duration, it is very evident that it would have been more advisable to have rested during the night and started later, or at about 4 o'clock in the morning, on the second day. The rest of some 9 or 10 hours during the night thus obtained, would have enabled the march to be continued from 4 to 11 in the forenoon. We must not be surprised, however, if the distance performed in these 7 hours is not greater than that got over on the preceding day in 5 or even 4 hours.

If the march is to be renewed in the afternoon, we can only expect to do the same distance as on the preceding day, by taking far more time about it, so that a full night's rest until 6 o'clock on the following morning, now becomes absolutely necessary if the movement is to be continued on the third day.

Thus we may assume from the above that the *maximum*

distance that can be performed in *two days* (or 48 hours) is 70 kilometres ($43\frac{1}{2}$ miles) in the case of infantry, and 100 ($62\frac{1}{2}$ miles) in the case of cavalry, to which 15 and 30 kilometres ($9\frac{1}{2}$ and $19\frac{1}{2}$ miles), however, may be respectively added if the march is pushed on during the night between the second and third day till 6 o'clock in the morning, but this assumes the march to be then brought to a close for a time at any rate. Otherwise, if the troops have had their full night's rest, a distance of 30 and 40 kilometres ($19\frac{1}{2}$ and 25 miles) respectively may very well be got over on the third day, and the fourth day still see the troops in question in a fit state for marching or fighting.

Notwithstanding the somewhat arbitrary assumptions that have been used in the above, and which should always be given a considerable margin tending to lessen the results arrived at, owing to previous fatigue and exposure, bad quarters and food, indifferent roads and unfavourable weather, it may as well be mentioned that a night march must be considered as only adding once for all to the maximum distance that can be done in the time, and reducing the amount of marching that can be done on the following day, in proportion. Consequently, if it is a question of forced marching for several days running, the regular night's rest of from 9 to 10 hours duration, will be found on the whole to increase instead of diminish the total distance performed. Very unsatisfactory results, in the long run, however, must be expected when, in the case of large bodies of troops, it may for some reason or another appear desirable to form up the whole force from column of route in one common "rendezvous" or bivouacking formation, either at the end of each day's march, or even during the long halt that usually takes place about noon. In the case of small bodies, or when a long column is formed up along the road in detachments at distances corresponding to the depths they occupy in column of route, both during halts for rest and on completing each daily stage, this consideration of course loses its importance. Again, in the case of small detachments, it is quite possible to enable longer stages to be performed if, especially in the case of the infantry, the men are relieved from the trouble of cooking their

food by being directly fed by the inhabitants on whom they are quartered, and are thus enabled to enjoy more perfect rest when halted. This, however, is a proceeding which is only possible when the bodies of troops marching are not too large, and can without fear of the enemy, spread themselves over a comparatively wide extent of country, and consequently draw to the full extent on its resources both as regards food and shelter, the arrangements for doing this being, at the same time, prepared beforehand by the General Staff and Intendantur combined, covered by a force of cavalry pushed a day's march or so to the front.

Picked bodies of cavalry and small detachments of infantry mounted on carriages can get over enormous distances in one or two days' march; but owing to the numerical weakness of such bodies, the use of such detachments must always be one that would be rarely resorted to. They cannot well separate themselves for any length of time together from the main body to which they belong, and which naturally moves more slowly, unless they are constituted as flying columns. The latter, however, cannot be expected to perform very brilliant services, unless they are acting in their own country or can reckon on the support of the inhabitants, and experience shows that they constantly require a whole day's rest at a time.

This, however, is equally necessary every fourth, or at the least, every fifth day in the case of a large force moving by forced marches, more especially with a view to replacing the wear and tear of *matériel*, caused by a forced march of several days. This has more especial reference to the boots of the dismounted branches and the shoeing of the horses, and it should be remembered that the wear and tear in question does not result from three or four days' marching, but from the distance that has been got over in these three or four days, it being equal, in fact, in many cases, to what would have been performed under ordinary circumstances, in some six or eight days. Again on days when troops have marched nearly double the usual distance, the men on reaching their billets are too tired, and have little time left to undertake such repairs, as they would, if the march were an ordinary one.

Finally, it may as well be distinctly understood that forced marches are impossible, except with highly disciplined troops. When troops are wanting in discipline, or in other words, when subordination to the will of the superior has not been so far instilled into their very nature as to make the will of the spirit stronger than that of the flesh, a large percentage of men are certain to fall out and be left in rear, in addition to, and independently of, the actual casualties that arise from accidents or unforeseen circumstances. In such cases, it is far better in the long run not to attempt too much.

5. THE USE OF RAILWAYS.

We must be careful not to over-estimate the use of railways as a means of rapidly conveying large masses of troops from place to place during active operations. In the first place ordinary railway traffic cannot be entirely suspended for any great length of time, as the very existence of the civil population is, in many cases, to a certain extent, dependent on it. Consequently the military authorities, often after a long and tedious dispute, are, as a rule, only given a partial concession in the use of a railway, by virtue of which the use and resources of the line are placed at all times entirely at their disposal.* And again, if we bear in mind that the military *administrative* authorities must always have by far the greater part of the available rolling stock at their disposal, to keep the army fully supplied with everything it requires in the shape of stores, but little often remains to the *combatant* authorities to enable them to move large masses of troops.

The difficulties of the question are best seen if we take the case of an army occupying an enemy's country after successful offensive operations, when the railways of the country after being repaired and put in working order, have to be provided with both *personnel* and *matériel* brought from the invaders' country. On the other hand, when an army retires on its own soil in the face of an invader, the *personnel* and *matériel* of the railways abandoned to the enemy either precede or accompany the retiring forces, and can be turned to account by the latter

* This of course refers to a friendly population.

on the railways that still remain at their disposal, so as to increase their capabilities of traffic.

But no movement of troops on a large scale, such as takes place according to pre-existing arrangements, on the concentration of the army before hostilities commence, can possibly be expected to take place with the same regularity and despatch, when the arrangements have to be made during active operations. In the first case advantage is taken of the network of railways covering the country and the rolling stock that belongs to them, to convey the troops scattered in the various garrisons, by several through routes, straight to the rayon of concentration ; but in the second case, it is a question of moving a large concentrated force from one point to another, there being perhaps only one line, or at the most, very few lines of railway available and provided with an adequate amount of rolling stock.

When the force is small, but the distance it has to be moved considerable, as for instance, from one theatre of war to another, a great saving of time may be effected by using railway transport. But it can very possibly happen that when the distances are short, and the forces to be moved large, not only may no time be gained by such a proceeding, but the interruption of regular traffic on the lines of railway used, may actually in the end, bring about a considerable delay in the assembly of the whole force at the point or points whence it is to start on a new set of operations.

The conveyance of large masses of troops by rail with improvised arrangements only, is, in fact, an operation beset with every kind of difficulty apart from the danger of interruption by the movements of the enemy. There are of course cases where these difficulties would be less liable to be met with—as for instance, in the defence of a line of coast, when the conveyance of troops from one point to another is a matter that can be foreseen, and steps taken for carrying out the operation with certainty and despatch.

The arrangements that are necessary for the movement of troops by rail, of this or any other kind that may have to be undertaken whilst operations in the field are actually going on,

are made on precisely the same principles that apply to the concentration of an army before the commencement of hostilities.

If both the line and stations of a railway are perfectly safe from attack, there is no reason why, comparatively speaking, small bodies of troops should not be conveyed by rail to the immediate neighbourhood of the very battle-field itself, in support of the force that is actually engaged with the enemy.

6. ON THE TRANSPORT OF A LARGE FORCE BY SEA.

Our reason for including in this work the question of the transport of troops by sea, does not merely rest on the fact that, owing to the great strides that are taking place in the growth of the German Navy, it is quite possible that in some future war we may see a German Army conveyed by sea to the *attack of an enemy's coast*.

In the first place, the subject is ultimately connected with the defence of our own shores, inasmuch as the embarkation, transport, and disembarkation of an enemy's forces, are necessarily concerned, and, though admitting that these are matters more intimately connected with the naval profession, still a general knowledge of the subject, taken as a whole, is very desirable in the case of officers of the General Staff.

First of all comes the *selection and fitting out of vessels as troop-ships*. When a navy does not comprise vessels specially built and fitted out for the purpose, either certain men-of-war must be converted from fighting ships into transports, or merchant steamers must be fitted out as such. A vessel cannot be both a fighting ship and a transport. A man-of-war cannot, owing to her peculiar build, carry as many troops as a merchant vessel of the same size. The latter class of ship is consequently much to be preferred for carrying troops, and the larger the vessel is, the better.

The largest should be chosen for the infantry, as the breaking up of tactical units is thereby as much as possible avoided; and infantry, it should be remembered, disembark much faster than any other arm. The next vessels in size should be used to convey horses. The number of horses accompanying an expedi-

tion by sea should always be reduced to a minimum, and they should not be conveyed in small vessels, owing to the lively motion of the latter in a seaway; such craft are best reserved for carrying stores.

A vessel must of course be specially fitted up internally for the troops she is to carry. In almost every case it is necessary to fit her with either one or two decks (half or whole), having a clear height between decks of at least 2·5 metres (8-ft.), besides which, she must be temporarily fitted up with cabins, horse stalls, arrangements for ventilation, additional cooking and latrine accommodation, places set apart as hospitals, etc.

The number of men, horses, or guns that a vessel can be fitted up to receive, depends of course on her tonnage. This depends on her size and build. Taking the height between decks as 2·5 metres (8-ft.), the necessary deck surface may be taken as from—

1·2 to 1·4 square metres (13 to 15 sq. ft.) for a man.

4·8 to 5·0 " (51½ to 54 ") " horse.

and taking the height between decks as 1·8 metres (5ft. 10in.)—

6 sq. metres (64½ sq. ft.).. .. for a gun.

3 " (32½ ").. .. " limber.

From the number of decks and their surface, the men, horses, and guns that the ship can carry may thus be ascertained. An approximate estimate may also be made from the tonnage of the ship alone, taking a man as requiring from 1½ to 1¾ tons, a horse as four men, a large waggon as six men, a fully horsed battery as 800 men, and a squadron as 800 men.

One of the large German Transatlantic steamers could, if fitted up as a troop-ship, carry according to these calculations, a battalion, squadron, or battery in addition to her own crew of 120 or 130 men. These vessels are 340 feet in length, 40 feet in beam, and draw about 20 ft. of water. Smaller vessels from 230 to 260 feet in length, 30 to 36 feet in beam, and drawing from 16 to 20 feet of water, could carry about two-thirds of a battalion, etc., and still smaller steamers which could only be fitted with a single deck, only a third.

Care should be taken when conveying a force of mixed arms by sea, to avoid as much as possible breaking up or dividing

organised tactical formations. In the first place it would prove exceedingly inconvenient on landing the troops, and it would be very much more so if they were required to act immediately after landing.

For *landing* troops, transports must be provided with certain appliances. The most important of these are troop-boats and steam launches; the former are for disembarking infantry, and the latter chiefly for towing prahms and rafts specially prepared for conveying horses, guns, and stores ashore to the landing piers; the latter should be made on the beach, directly it has been seized and occupied. They would, as a rule, be made by the ships' crews,* supplemented by any engineers the force might contain.

A large merchant steamer carries eight boats as a rule, but no steam launches. If such a vessel were fitted up as a troop-ship, she should be provided with ten boats and a steam launch. The fighting ships accompanying a fleet of transports, would of course put their boats and steam launches at the disposition of the troops when landing. Prahms and rafts would have to be put together in the water alongside, the necessary materials having been prepared and carried on board. A prahm or raft should be large enough to take a fully horsed field gun together with its gun detachment, or 50 men, or 10 horses with their riders, and should not draw more than from 18 to 20 inches of water. If the rafts, etc., are deep in the water, the landing piers must be made longer; their length in the first place, of course, depends on the character of the beach.

As a means of ascertaining the latter as well as for other reasons too evident in themselves to require explanation, a landing must always be preceded by a *reconnaissance of the shore*. The gun boats and despatch vessels sent ahead for this purpose, have in the first place to find out how far from the shore the 4 fathom line runs, and how near in-shore there is a depth of some 4 or 5 feet. The first is necessary as determining the anchorage of the transports (which draw some 2 fathoms or

* The crews of merchant steamers employed as troop-ships would be brought up to the full strength already referred to (120 to 130 men in the case of a large vessel), by detachments from the Imperial Navy.

18 feet of water), and the piers should be carried out from the shore to at least a depth of 4 or 5 feet, so that prahms or rafts can always approach, even if there is a sea on.

Landing operations are of course facilitated when both the outer and inner depths referred to are close in shore.

When the landing place has been fixed as the result of the reconnaissance made of the coast, the gun boats and despatch vessels acting as *clairieurs*, together with some ship's boats, take up a position marking the anchorage of the fleet of transports in one or two lines. As soon as the latter arrive, the vessels keeping three ship's lengths apart and the lines two cables interval, the landing would at once commence. An ordinary boat can take on an average, 30 infantry soldiers. Thus a large steamer provided with ten such boats could send some 450 men ashore at one trip in these, and on, say, 3 prahms towed by steam launches. The time taken by the journey of course depends on the distance the vessels are anchored from the shore, and the weather. Supposing the latter to be favourable, and the transports to be lying some 1,000 yards from the shore, the following may be assumed :—

a. For prahms: 15 minutes to load, 15 minutes to be towed ashore, 10 minutes to unload, and 10 minutes for the return journey, giving a total of 50 minutes for each trip.

b. For boats: 25 minutes to load, 20 minutes to be rowed ashore, 15 minutes to unload, and 15 minutes to be rowed back to the ship, giving a total of 75 minutes for each trip.

In the case of horses and carriages, the time required is considerably more.

The time required to land a battalion (1,052 men, 36 horses, and 7 carriages) would, according to the above, be about six hours, but an hour might be saved if the men were landed at once, and before the piers were built; in this case they would have to step out of the boats and wade ashore.

Small detachments of infantry could be landed in far less time, using all the resources of the men-of-war and transports, but the time taken in landing can never be reckoned on as less than that occupied by *one* trip ashore.

It requires some five hours to land a squadron if the vessel can

work six prahms or rafts, and have them towed ashore by steam launches or row boats. Much the same time would be required for a battery under the same circumstances.

Thus it may be assumed that, even under exceptionally favourable circumstances, no landing on a large scale could be effected in less than six hours, reckoning from the time when the ships first cast anchor. But such an operation would be seriously retarded by anything like want of preparation, a long distance between the ships at anchor and the shore, difficulty in establishing piers on the beach, and bad weather. And should the enemy be able to concentrate and bring a strong force to bear on the point of disembarkation, the success of the expedition may well be doubted.

If the landing of the combatant portion of the force is successfully carried out, the first thing to be done is to push on without delay, and seize ground, far enough at any rate to safely cover the disembarkation of baggage columns, trains, and *matériel* against any attack from the land side. Again, no time must be lost in establishing oneself firmly and permanently on the coast, so as not only to have a secure base for any further operations, but a safe retreat in case of failure, where the re-embarkation of the expedition could be covered. It would be a real piece of good fortune if the place selected as the point of disembarkation also fulfilled the latter conditions, or could be made to do so by any temporary works of fortification, etc. This, however, would be very rarely the case.

Under certain conditions it might be advisable to try and seize by a grand attack by sea and by land, some fortified place on the coast where there is a harbour or the mouth of a large river, but in any case the point selected as a base for further operations should be immediately fortified, and strongly occupied.

CHAPTER V.

REST AND QUARTERS.

A CERTAIN amount of rest is indispensable for both man and horse, and this cannot be ignored for any length of time, even in time of war. For from the very fact that, owing to the peculiar conditions of the latter, troops are constantly prevented from enjoying regular and uniform periods of rest, it is the duty of every General holding a command to make a point of invariably giving his troops ample and unbroken rest whenever the circumstances of the situation may justify it. This means always avoiding night marches, night alarms, etc., as interfering with our *night's rest* to which we are, by nature, accustomed.

The question of quarters or shelter is so intimately connected with that of rest, that it would be impossible to consider them separately. The better the troops are housed, the more perfect will be their rest, and consequently, the better the chance of preserving their health and strength. Thus bivouacking in the open air should never be resorted to unless absolutely necessary, and this point cannot be too strongly insisted on. Experience has shown, indeed, that more men are lost to an army by such a proceeding, especially in inclement weather, than by the hardest fought battles on record.

Formerly when armies were comparatively speaking, small (up to the time of the French Revolution), troops encamped during the whole period of active operations, in tents which were carried either in special waggons or carts, or on pack-horses. On the approach of winter, hostilities ceased by a sort of conventional arrangement, and the opposing armies went into winter quarters where they were completed with men, horses,

and *matériel*, with a view to renewing the contest in the spring of the following year.

Again, even during the time of the year suited for military operations, armies after acting against each other for certain periods of time, were allowed by a kind of tacit arrangement to withdraw into what was termed quarters for refitting purposes (*Erhohlungs Quartiere*) which, though not justified by any actual truce or armistice, separated the combatants for considerable intervals of time in the interest (at least as was supposed) of either party. Under these circumstances, armies could be perfectly well kept in a healthy condition when sheltered in tents at a favourable time of the year; their small size, together with the methodical system of warfare practised in those days, enabling them to be accompanied by baggage trains meeting all their wants.

The French Revolution, raising armies by the *levée en masse*, abolished tents, as enormous baggage trains would have been necessary to carry them, and would have seriously interfered with rapidity and freedom in manœuvring armies. It was rightly argued, that instead of having 6,000 horses carrying tents for an army of 100,000 men, it was better to have the same number of cavalry or some hundred additional horsed guns. The question of shelter from the weather was settled by adopting the system of quartering the mass of an army on the inhabitants, known as *cantonments*. Thus the burden of finding quarters for an army was taken from the shoulders of the military administrative authorities, and placed on those of the inhabitants; and with the introduction of this principle, came also a change in the system of feeding armies, or the substitution of requisitions on the country in the place of magazines.

Bivouacking was only resorted to when troops were kept ready for immediate action (as in the case of detachments on outpost duty), or when large masses were closely concentrated within, practically speaking, narrow limits (such as took place on the days preceding or following decisive actions on a large scale), and the villages in the neighbourhood were not sufficiently large or numerous to afford quarters for all.

Winter quarters are now, strictly speaking, no longer resorted

to. Decisive battles are soon fought between large armies, and even if final results are not brought about at a favourable time of the year, or should the war only break out on the approach of winter, the bad time of the year is no longer taken as an excuse for not commencing or carrying on the operations of war. Pauses during active operations constantly take place, it is true, at all times of the year, during which troops may be refitted during short periods of rest in cantonments. But such pauses are only either the result of a regularly concluded truce or armistice, or are brought about by the fact that preceding events have caused the opposing armies to be widely separated, which means as a rule, a prelude to a fresh series of operations.

Troops actually engaged in active operations in the field have sometimes to bivouack, and at other times are cantoned; as a rule, however, a plan which may be described as a mean between the two methods is adopted, called by the Germans, "*Ortschaftslager*." This may be described as occupying to the full extent every house, etc., in a village for *one night only*, and causing the remainder of the force, for which there is no accommodation, to bivouack in the immediate neighbourhood, or even in the farm-yards, gardens, etc., in the village itself, so as to take advantage of a certain amount of protection afforded against inclement weather, and turn to account any resources the place may be found to contain.

Camps are, however, still occasionally resorted to now-a-days when military operations are confined for any considerable time to the same place—such as happens, for instance, when blockading a fortress. The mass of the investing forces would be cantoned in villages, etc., but the main bodies or reserves of the supports would be hutted, and the bivouacks of the outposts would gradually become camps of straw or brushwood shelters.

Tents may be used to accommodate prisoners of war during the summer, or when the weather is favourable, but on the approach of winter they must be replaced by huts.

α. CANTONMENTS.

Cantonments, both as regards the extent to which the villages, etc., may be occupied, the distribution of the different

arms, etc., and the necessary steps that have to be taken in consequence, must always depend in time of war, on the circumstances of time and place in each individual case, and on the resources and character of the country.

It would be quite impossible to explain by numbers the meaning conveyed by the terms "close" or "extended" cantonments. The first thing to be considered is, how much time shall we be allowed to collect and assemble a force from its cantonments, so that it may be ready to engage the enemy or carry out any other part of a military programme that may be assigned it. Upon this entirely depends the distance or degree to which it may be safe to extend the rayon of cantonment, and then whether the latter is thickly or thinly occupied, is merely a question of the number of houses and villages it contains. The principle of always scattering cantonments as far as the military situation permits, is a rule that always holds good. But it may often happen that in the practical application of this rule, we may be obliged to canton troops as closely as possible or even cause a certain proportion to bivouack, when it would be either unadvisable or dangerous not to consider tactical considerations of the first importance.

On the other hand, cases may sometimes occur when, in order to procure good accommodation for troops that are much in need of rest and shelter, we may be fully justified in putting tactical considerations somewhat aside for the moment.

All this may appear very vague, and is in fact so. Nevertheless it may be quite possible to arrive at somewhat better defined conclusions if we endeavour to consider separately, as far as possible, the different circumstances under which troops have to be cantoned. Cantonments might thus be classed as: cantonments during the concentration of an army; cantonments immediately preceding the outbreak of hostilities, or during operations, but whilst the army is not in the immediate presence of the enemy; cantonments or "*Ortschaftslager*," that are changed on the march from day to day whilst active operations are being carried on; cantonments lasting for a considerable time during the investment or siege of a fortress; and

finally, cantonments occupied during a regularly concluded armistice.

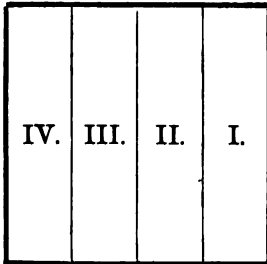
1. CANTONMENTS DURING THE CONCENTRATION OF AN ARMY.*

In this case we must first of all, in addition to providing food and comfortable quarters for the troops that may be still on a peace footing, turn our attention to the enemy, and consider what might be his probable line of action as well as that which we propose to take ourselves. On the latter mainly depends *the choice of the rayon of concentration*. The question of finding quarters for the army within the latter, is then a matter to be settled in conjunction with the civil authorities of either our own government or that of an allied country. The extent to which the country in question would be occupied, varies with the strength of the forces to be concentrated, the extent of country comprised within the limits of the rayon of concentration, and the facilities offered by the latter for quartering troops. As long as the commencement of hostilities is not absolutely close at hand, the rayon should be kept as widely extended as possible to be so far contracted just before hostilities break out, as to enable the troops to be rapidly assembled from their cantonments, and at once commence operations.

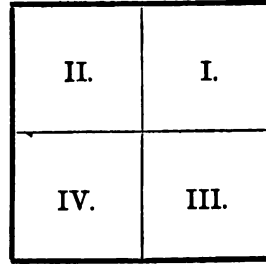
When several Army Corps are cantoned in close proximity to each other, it is more advisable to place them alongside each other so that each occupies a narrow front and a great depth, rather than a front and depth of approximately the same dimensions. This is best explained by the following figures in which the arrows give the direction in which operations are contemplated.

* See remarks on this subject, Chapter, IV, pages 106 and 107.

↑
Fig. A.



↑
Fig. B.



According to Fig. A, a closer concentration when necessary, can be carried out by closing up the Army Corps on itself, but according to Fig. B, it would have to be done by closing up one Army Corps on another, in which case the cantonments vacated by the one in front would be re-occupied by the one in rear. Again in Fig. A, the Army Corps when closed up would occupy the same front as before, so that the duty of covering it could still be performed by the same troops, whereas according to Fig. B, troops belonging to Army Corps, III and IV, in second line, would have to be brought forward to the extreme front and occupy positions in a country hitherto unknown to them. But it is precisely at this period of a campaign, when the frontier dividing the hostile armies cannot be too strictly watched, that a detailed knowledge of the ground occupied by the troops pushed to the front, is so essentially necessary.

It is of course assumed that in the arrangement which we have shown is to be preferred, four good roads exist by which all four Corps could advance parallel to each other. But if there were only two such roads, and two Corps would therefore have to march on each, one behind the other, there would be no possible advantage in placing the Army Corps according to Fig. A, as a preliminary to commencing operations. The arrangement given in Fig. B, would in this case, be preferable, and it would be merely a question, shortly before the commencement of actual operations, of closing up each Army Corps on its own front in the direction of the two roads, the two leading

Corps thus forming a first *echelon*, and the two following, a second.

This example is sufficient to give an idea of the numerous and different considerations that have to be considered when apportioning a large rayon of concentration to the various Army Corps.

In the case of a *single* Army Corps, or a body of troops of any size forming a tactical unit by itself, cantoning independently, the best form to be given to the rayon of cantonment is that of a square or circle, provided of course the peculiar topographical conditions of the country or suchlike considerations do not stand in the way.

The distribution of the troops within the rayon chosen would take place according to the *Ordre de Bataille*, the character of the country being at the same time never lost sight of, so that no natural topographical feature offering an obstacle to the movement of troops is allowed, if possible, to sever or interfere with the connection between bodies forming the same tactical unit according to the *Ordre de Bataille*. This consideration is sufficiently important to justify a slight variation in the degree to which the occupation of the different villages may be carried.

As a rule, the two Infantry Divisions would be cantoned alongside each other, arranged rather according to their depth than their breadth. Their respective cavalry and artillery should be assigned cantonments in front unless, as it sometimes happens, these are given to a Cavalry Division or Brigade which is attached to the Army Corps for quarters. In such a case, the Divisional cavalry and artillery would be assigned cantonments somewhat further in rear. The Corps Artillery would also, in most cases, be divided among the Infantry Divisions as a means of providing it with suitable quarters, and room would then be found for it with the rear detachments of infantry.

Ammunition columns and trains would be given, as long as the cantonments were extended, distinct rayons of their own in rear of the Infantry Divisions. On the cantonments being drawn closer together, the mounted arms (cavalry and artillery) would

close up to the front, and certain cantonments hitherto occupied by the infantry might now be allotted to the first *echelon* of ammunition columns and trains.

Bridge trains should, if possible, be stationed near a river. They would thus be given an opportunity of practising bridging, and could, in addition, establish bridges at points where none exist, but where they would be nevertheless very desirable as long as the Army were cantoned in the neighbourhood.

Too much importance cannot be attached to the matter of choosing positions for the various *head-quarters* (*Hauptquartiere* and *Stabsquartiere*). The points chosen, in fact, can either greatly facilitate or seriously impede the transmission of orders. The head-quarters of an Army Corps should be in telegraphic communication with Army head-quarters; and it should moreover be given, as far as is possible, a central though somewhat forward position as regards the rayon of cantonment.

Divisional head-quarters and the head-quarters of the artillery and trains should be situated, as far as possible, centrally as regards their respective rayons, and near Army head-quarters; by this is not only meant being near as regards actual distance, but as regards the nature of the means of communication. In other words, if the head-quarters of a Division were separated from its Army Corps head-quarters by a distance of some 20 kilometres, but connected with it by the telegraph, it would be practically nearer than if it were only 10 kilometres distant, but not in telegraphic communication.

We now have to consider the positions to be assigned to *magazines* and *hospitals*. When the necessary steps have not been taken in this respect by either the General commanding the Army or his officer in charge of "Communications" (*Etappenbehörden*), the most important point in the selection of these positions is their connection or communications with the railway. Railways enable magazines to be filled and hospitals emptied. Consequently, the best position for these is actually on a line of railway. On the other hand, questions of locality, such as healthy situations, plenty of open space and air, and convenience of position in the rayon of cantonment as regards the wants of the army, cannot of course be ignored.

No corps or regiment (*Truppentheil*) should, as a rule, be further than 10 kilometres ($6\frac{1}{4}$ miles) from a magazine.* In the case of hospitals, however, the distance may be considerably more, as dépôts for sick should always be established in towns and villages occupied by troops, by the surgeons belonging to them, for the reception of cases of slight sickness and those who are too ill to be moved. In all cases of sickness which promise to last for a considerable time, the invalid should be removed to hospitals established further in rear.

As a general principle, the establishment of mobile field hospitals is a thing to be avoided, although there is no reason why the medical *personnel* belonging to them should not be employed, if wanted, in any large cantonment hospitals that might be temporarily established. It is important in selecting positions for the latter, to bear in mind that it is well to choose places where there is a resident civil doctor either in the place itself, or in the immediate neighbourhood, so that on the troops quitting the country, the sick that are left behind may be handed over to his care.

The above considerations have, it may be seen, mainly reference to the existence and welfare of the troops themselves. We have now to deal with points connected with the employment of troops in the field, precautions against surprise, attack, etc.

Let us first consider the question of fixing *places of alarm and assembly* (*Alarm und Sammelplätze*). The first condition that the choice of such places must depend on is that, taking the case of the most unforeseen attack on the part of the enemy, the troops must be able to concentrate or assemble on them in absolute security. Thus in cases where there is no natural obstacle in the way of an enemy's advance, ensuring this being done with safety, certain steps should be taken with the same

* The provision and park carriage columns (*Proviant- und Fuhrpark kolonnen*) may be used for replenishing the magazines from the railway stations and supplying at the same time the troops in cantonments from the former, if the draught animals of the country are requisitioned to the fullest extent. Under these circumstances, the provision and such like columns would be cantoned or stationed either in the actual places where magazines are established or very near them.

object, such as taking additional precautions against surprise, and keeping the cantonments of the troops at a respectful distance from the frontier. As regards the latter question, it appears desirable in any case to observe a free space or zone of from 6 to 8 kilometres, with the double object of avoiding any premature violation of the frontier, and giving the outposts sufficient room, or a certain freedom of action.

In other respects the points selected as "places of alarm and assembly" must depend on the rayons of cantonment of each tactical unit. As regards this point it must be distinctly laid down in orders whether the different battalions, squadrons, and batteries are to proceed directly from their cantonments to the "place of alarm" of the Division, or first of all to the places of assembly of regiments, brigades, etc., as a preliminary measure. These preliminary places of assembly should always, if possible, be so chosen that the places of assembly of the higher tactical units may be reached without making any détours.

Artillery must never proceed alone to the "place of alarm," but should invariably be either accompanied by a special escort detailed for the purpose, or ordered to join a force of infantry or cavalry.

As the assembly at a "place of alarm" naturally means the concentration of troops in a *position ready for action* (*Bereitshaftstellung*), the remarks on this point that will be found further on in Chapter VIII, apply equally here. And if besides fulfilling the requirements considered necessary under this head, the place is well suited as a manœuvring or exercising ground (*Übungsplatz*) for a large force, and there is in the immediate neighbourhood of the "place of alarm," a good military position (*Gefechtsstellung*) well adapted for defence against the probable attack of the enemy, these are additional advantages of the highest importance, and to which too much attention cannot be paid. The circumstances of the situation must always decide whether "places of alarm" are merely fixed for the Divisions, etc., or whether the whole Army Corps or, at any rate, its combatant portion, is to concentrate in every case of alarm, on a given point or position. As a rule, the latter arrangement is not one

to be recommended, especially in cases when the time that would be occupied by the Divisions, etc., in assembling on their "places of alarm," would be amply sufficient to enable the necessary orders as regards the further action of the troops in each separate case, to be issued.

So long as war is not actually declared, the precaution of *protecting the Army by outposts* may appear superfluous, inasmuch as the danger of an unforeseen attack on the part of the enemy, might seem sufficiently guarded against by the conventional rules of civilised warfare. The experience of past wars has, however, shown that in addition to deliberate attempts to violate the law of nations, conflicts are always liable to take place owing to misunderstandings or want of judgment, and these, if no precautions are taken against surprise, may cause heavy loss to the side taken unawares. But in addition to these reasons, a certain amount of reconnaissance, outpost, and scouting duties is useful in preventing espionage, obtaining information on the movements, etc., of the enemy, and affording the troops practice, inasmuch as watching even the civil population accustoms troops to shake off the habits and customs of peace.

Cantonments being then, as has been before stated, 6 kilometres ($4\frac{1}{2}$ miles) at least from the frontier, *alarm houses* or *posts* (*Alarm häuser*) would be established in those lying in the extreme front, and small detachments would be pushed forward on the main roads leading to the enemy's frontier. The latter then, taking every military precaution as if hostilities had actually commenced, would assist the authorities on the frontier in keeping a watch on the traffic, examine all persons passing, and arrest suspected individuals, especially those found when patrolling by-roads and paths. In such cases no single officer would be appointed to the command of all the outposts in the rayon occupied by the Army Corps; the various detachments would rather, as a rule, be under the immediate orders of their respective Divisional Commanders, and from them receive all necessary instructions.

All the various duties ensuring the safety of the Army, to which we are now referring, are often performed by portions of the first Cavalry Divisions that happen to be pushed forward to

the frontier; and if these still occupy the same positions after the various Army Corps have moved up, the latter have only to afford the cavalry in their front a proper support by posting detachments of mixed arms in the right place.

If the above is a sufficiently clear explanation to give an idea of how an Army Corps is cantoned, and the various steps that have to be taken in consequence, etc., etc., we may now examine more closely the share of the work that falls to the lot on such occasions, of the General Staff.

Directly the rayon of cantonment for the Army Corps is fixed, be it in accordance with Army head-quarter orders or by the direct order of the General commanding the Army Corps in question, the officer of the General Staff specially detailed to make arrangements for quartering the Army Corps (in most cases the senior officer of the General Staff), would proceed at once to the rayon indicated for the Army Corps, accompanied by an employé of the Intendantur (or the Corps Field Provision Master), a military surgeon, an Adjutant, and a few clerks. During the journey he can, provided he knows the number of inhabitants of the different villages, always prepare some kind of project, though he may be totally ignorant of the amount of accommodation the district can afford. A map carefully kept up to date as regards railways and metalled roads, at once affords him a rough idea of choosing points for the establishment of magazines and hospitals. Once on the spot, questions of detail as regards both the latter, would be left to be settled by the Intendant and the doctor, whilst the General Staff officer would lose no time in fixing the distribution of the troops about to arrive, by coming at once to an arrangement with the various civil authorities concerned. The endeavour of the latter is always to equalise as much as possible the occupation of the various villages, and this is a point equally desirable as regards the comfort and welfare of the troops. But deviations from acting on this principle must constantly be made so as to distribute troops according to the *Ordre de Bataille*, and avoid a scattering of tactical units,

The General Staff officer in question should take up his quarters for the time that he is engaged in this work—for

which, as a rule, there would be at the most but a few days available—at some point situated if possible on the railway,* or at any rate where there is telegraphic communication. He would then invite the civil authorities or their representatives to meet him there, and transact the necessary business, and he would not quit the place until the whole matter were arranged. The Adjutant attached to him can be sent, if necessary, on any ordinary mission that may appear sufficiently important, this officer being at the same time entirely at his disposal as regards indoor work.

As soon as the distribution together with the Tables of Marches, are drawn up and completed, he would forward them to the Chief of the General Staff, or as the case may be, hand them himself to the General commanding the Army Corps, on his arrival at the head-quarters of the latter.†

The civil authorities should note everything that concerns them during the transaction that takes place. Extracts from the Tables of Quarters and Marches‡ would be given to the different officers who precede the troops by 24 hours to take over or tell off the quarters (*Quartiermacher*), either by the General Staff officer or by the Station Commandant at the point of disembarkation. These extracts, besides giving the necessary information concerning the corps or regiment to which they are addressed, should also state whether there are other corps with which the quarters on the march or cantonments have to be shared, as well as give the places where the commanding officers of such corps are to be quartered.

From what has been stated, some idea may now be formed of the vast and responsible duties that the General Staff officer has

* In the case of the concentration of the Army Corps by rail, it would be at the chief point of disembarkation (*Hauptauschiffungspunkt*).

† When there is time enough, it is always advisable to make a sketch, in which, by the use of coloured pencils representing the different arms, etc., the various allotments can be at once clearly shown.

‡ The form used for Tables of Quarters is, as a rule, much the same as that used for Peace Manœuvres. A column is necessary to give the magazine from which the troops are to draw both rations and forage. Similarly the hospital which is to receive their sick must also be indicated.

to carry out for his Army Corps in this matter. It would moreover hardly appear practicable to lighten his labour in this question by giving him the assistance of the Divisional General Staff officers, from the fact that there would be too many opposite interests always at work, which could only be satisfactorily and evenly balanced by *one* unprejudiced competent authority.

The operation of cantoning a Cavalry or Independent infantry Division would be similarly carried out by its General Staff officer, who would have attached to him, if necessary, for the purpose, an employé of the Intendantur or Commissariat, and the Divisional surgeon. In every case he must arrive on the spot *before* his Division, even when the latter has been temporarily attached to an Army Corps for quarters, so that no time may be lost in acquiring the necessary information.* Besides, he can be of no possible use to his Divisional General when travelling alongside him in a railway carriage, for all matters connected with the conveyance of troops by rail are entirely in other hands, and have nothing whatever to do with him.

The next question, after completing the arrangements for the actual quartering of the troops, is to select "places of alarm" and "assembly," reconnoitre defensive positions, mark the line of outposts, etc., etc. The results of his labours and investigations would be submitted to the Chief of the General Staff, or to the General commanding the Army Corps, in the presence of the former.

Finally, the question of ensuring the safe and rapid transmission of orders and messages is a most important one, and must not for a moment be lost sight of.

First of all there is the existing telegraphic and postal arrangements of the country, and the question of adding to their efficiency by employing the field telegraph detachments and the field post-office. Next, it may be often necessary to establish in places here and there, in conjunction with the

* It is even advisable, if at all practicable, to send the General Staff officers of Divisions forming part of Army Corps, ahead of their respective Divisions.

above, and where there is no telegraphic communication, lines of mounted relays* as a means of forwarding messages, etc., between the head-quarters of the Corps in question, and the head-quarters of the various bodies of troops forming part of it and acting under the immediate orders of the General Commanding, as well as perhaps in certain cases to communicate with Army head-quarters or the head-quarters of a neighbouring Army Corps.

There remains the question of transmitting signals by means of lighted beacons. This visual mode of telegraphy which does not allow the nature of the message to be varied (the lighting of the beacon can only have some hard-and-fast meaning, in most cases giving an alarm), is becoming every day more a thing of the past, owing to the rapidity with which messages can be transmitted by more modern appliances. To prepare them properly often requires considerable time and trouble, they have to be very carefully watched and attended to, and in foggy or thick weather, cannot be depended on. At any rate, it would be exceedingly dangerous to trust entirely to them alone.

2. CANTONMENTS IMMEDIATELY PRECEDING THE OUTBREAK OF HOSTILITIES ; OR DURING OPERATIONS, BUT NOT IN THE IMMEDIATE PRESENCE OF THE ENEMY.

It has already been stated at page 172, that shortly before the outbreak of hostilities, or at any rate, immediately war is declared, cantonments should be drawn closely together, so that the army can at once, starting from them, commence operations. Tactical considerations are consequently now of the first and highest importance. Putting aside, therefore, the fact that in most cases cantonments should be chosen that suit the composition and subdivision of a force, provision must, in the first place, be made for the interval that it is necessary to leave between the advanced guard and main body; and the limits to which the

* See remarks on relays, pages 84, 85. "As long as war is not actually declared, and no alarm has as yet been given, there is no reason why the men should not ride without their kits."

rayon of cantonment may extend must at the same time be carefully laid down.

The conditions to be fulfilled by cantonments under these circumstances, are precisely the same as those in the case of finding quarters for a whole Army Corps whilst operations are going on, but the Corps in question is not moving in first line, or in the case when cantonments are not to last beyond one day. In the latter case or so-called "cantonments on the march," of which more will be said presently, only the villages, etc., situated on or close to the main road along which the Corps, etc., is marching, would as a rule, be made use of, the force thus remaining *echeloned* along it; the houses, etc., would then be occupied with troops to the utmost extent, and a certain proportion would have in many cases to bivouack. Let us therefore, first of all, deal with cantonments of a more extended character, whilst operations are going on, or shortly before they commence.

The conditions upon which these depend, must also be of an exceedingly varied character. Besides topographical features which, if taken advantage of, may afford a certain amount of protection, there is the proximity, strength, state of preparation, and supposed intentions of the enemy, all of which have to be considered. For instance, the advance of the 3rd Army and Army of the Meuse on Paris, after the capitulation of Sedan, was made under circumstances justifying proceedings very different in character to those that had to be adopted in the movements that immediately preceded the battle. We shall consequently content ourselves with pointing out those tactical requirements which we must invariably endeavour to fully satisfy.

To ascertain the distance that should be left between the advanced guard and main body, we must first of all reckon the time that would be taken in sending the news of the approach of the enemy from the outposts to head-quarters, and from the latter to the troops in cantonments, together with that enabling the latter to be alarmed, assembled, and marched to the "rendez-vous." This, the total time required, must be safely guaranteed by the resistance that would be offered by the advanced guard in retreating on the main body. But as misunderstandings, mistakes, and accidents may greatly prolong the time reckoned on, it is always

safe to only reckon on the time that would be allowed if the advanced guard simply retired without offering resistance. Taking again the case when the advanced guard is to be supported by the advance of the main body, in the position it holds, the latter must be of exceptional strength, or outposts must be pushed *sufficiently far* in the direction of the enemy, to enable early tidings of the approach of the enemy to be given.

When retiring, it is well to remember that in addition to the time required for assembling the main body, a certain delay must also be allowed to enable it to get into column of route—expressed by the length of road occupied in this formation by the strongest column. Consequently the interval that separates a rear guard from the main body, must for this reason alone, be greater than that left between an advanced guard and main body.

It may then be inferred that when in *close* proximity to an enterprising enemy, extended cantonments, such as afford a roof of some description or other to all troops not actually on outpost duty, are almost a matter of impossibility. It is only by pushing masses of cavalry far to the front, by means of which alone we are enabled to know for certain the distance that separates us from the enemy, that we can have recourse to cantonments of this kind—a matter of the greatest importance, both as regards the welfare of the army and the question of maintaining it in fighting condition. Troops must not, however, expect the same ease and comfort under these circumstances as in ordinary times of peace. The area in fact, over which cantonments may be scattered, is after all, a somewhat restricted one. For even let us suppose a Cavalry Division pushed a good day's march (20 to 30 kilom., or $12\frac{1}{2}$ to $13\frac{1}{2}$ miles) to the front and covering us, it must always be possible to concentrate the Army Corps (or even perhaps an Army) in the course of a day, so that a battle may be fought with assembled forces on the following day. If this condition be strictly carried out as regards every point comprised in the rayon of cantonment, the latter must not exceed a circle, the diameter of which is about $22\frac{1}{2}$ kilom. (14 miles), or a square of some $22\frac{1}{2}$ kilom. a side. Within the space thus comprised, or from 400 to 500 square

kilom. (154 to 195 sq. miles), there are generally in a well cultivated country, some 3,000 to 3,600 fire-places or hearths to be found (without reckoning towns of any importance). This in the case of an Army Corps on a war footing, would give from 12 to 15 men per fire-place—or quarters which in time of peace we should consider excessively close.

Things however, have to be done on a vastly grander scale in time of war, and it should not be forgotten that a much larger force than an Army Corps has often to be assembled in the space above alluded to, and, as it frequently happens, moreover, the amount of accommodation, *i.e.*, the number of fire-places in it, is considerably less than that we have given.

Under such circumstances, it is a great advantage if the points, on which the troops are to be assembled in the course of a day, are confined to the country situated near the centre of the rayon of cantonment. The latter may then be twice as broad as it otherwise would be, and this advantage is, of course, of still greater importance when several Army Corps have to be brought within the space referred to.

Otherwise, and as a general rule, the best *form* that can be given the rayon of cantonment, is that approaching as nearly as possible a circle in shape with the points of assembly of the main bodies situated near the centre, and as a matter of choice, somewhat in advance of it. When acting on the defensive, this would often be the position previously prepared to accept battle in.

In cases where it is impracticable to give the rayon an approximately circular form, it should be given a greater depth than breadth; a force thus cantoned is better *echeloned*, both for offensive and defensive purposes, than if it were disposed on a broad front. Thus a large rayon of cantonment intended to be occupied by several Army Corps, would be subdivided among them, so that the different Corps stood alongside, and not behind each other.

The *position of head-quarters* should be chosen entirely with a view to rapid communication with Army head-quarters, and the quickest possible reception of news from the advanced guard or, as the case may be, outposts. The best situation is consequently a central one, and well to the front, without being

absolutely exposed. The head-quarters (*Stabsquartiere*) of the forces immediately under the orders of the General Commanding the Corps, would be established at points in accordance with the principles laid down at page 175.

The *positions for magazines and hospitals* must always depend to a great extent on the existing communications of the country, as well as on the facilities offered by the latter itself and the different villages, for their establishment. If but little can be expected in the latter respect, the work both of filling and forwarding magazines by railway, and of collecting and removing the sick to the rear, has to be almost entirely performed by the authorities in charge of "Communications" (*Etappen behörden*).

Let us now examine the duties that are performed by the General Staff in the case of cantonments of the kind under discussion.

The Chief of the General Staff (of the Army Corps) would mark off the rayons of cantonment for the 2 Infantry Divisions, but the allotment of quarters to the troops forming the latter, being the special duty of their respective General Staff officers, would be entirely left to them. It would be at the same time stated, whether the rayons allotted to the Infantry Divisions are to provide, in addition, for portions of the Cavalry Division (if there be one temporarily attached to the Army Corps), or of the Corps Artillery, or of the first *echelon* of columns and trains. In many cases the cantonments of the Corps Artillery would be clearly laid down by the Corps Commander, and instructions given at the same time as regards the strength of the infantry that is to jointly occupy them. If the Army Corps has an advanced guard of its own, the General commanding the Corps would have also to assign the latter a rayon of cantonment; otherwise, *i.e.*, when each Division forms its own advanced guard, the matter of assigning cantonments to the advanced guards, would be left to the respective Divisional Commanders.

The *co-operation of the Civil Authorities* in delimiting the rayons of cantonment and distributing the troops among the various villages, etc., is as a rule, out of the question, owing to the little time available in these matters; nevertheless, it is

always well, when allotting quarters to troops in a village, etc., to have recourse to the head man (*Ortsvorstand*). Joint transactions with the General Staff only take place in such matters, in the case of very large towns which can accommodate a Division or more. The town would, under such circumstances, be subdivided into quarters or districts, and allotted to the various corps, regiments, etc.

As regards the matter of *outposts*, the most important questions to be considered, next to the peculiar circumstances of the military situation at the time, is whether we intend or expect to occupy the cantonments in question for one or two days, or even for a longer period. The longer the force remains in the same place, the thicker should the outposts be, the more systematic their general arrangements, and the greater the care that the duties are efficiently performed. According to the circumstances of each particular case, a mean can always be arrived at somewhere between the system of outposts that would be used from day to day on the march, and those that would be posted when besieging or blockading a fortress, this mean having a tendency to one or the other of these extreme cases, which we shall presently investigate. To establish an unbroken line of pickets and vedettes is a proceeding which is very rarely necessary. But on the other hand, provision must always be made for offering serious resistance at certain points, especially defiles. Strong detachments provided with artillery should consequently be posted at such points, and these should push their outposts *beyond* the natural obstacle, etc., in question, presented by the topography of the country. In certain cases it may be necessary to take steps to destroy the roads, etc., by which the enemy may approach.

When a strong force of cavalry is well in advance, or more than a day's march ahead, the duties of scouting and reconnoitring naturally form its chief occupation, thereby ensuring the safety of the forces in rear against surprise and sudden attack. The Army Corps cantoning in rear of it must in this case, be first of all so disposed as to afford proper support to the cavalry in its front, and secondly, undertake the protection of its exposed flank, etc. For this purpose it would detach, with

the necessary instructions, a force exceptionally strong in cavalry, or indeed composed entirely of this arm, to hold some important point (such as the junction of several roads), where it would take up a position, using every military precaution, and reconnoitre for a distance of a day's march, the ground beyond, but especially in the direction whence danger is most to be apprehended.

It is the duty of the officer of the General Staff to consider all such matters and bring them to the notice of the Army Corps or Divisional Commander, as the case may be. The written orders that would be issued on the subject, should not contain any unnecessary detail as regards its execution; this should rather be entirely left to the officer commanding the advanced guard, special detachment, or outposts. These officers need only, so far as the question of covering the Army Corps is concerned, be informed of the extent of the rayon occupied by its cantonments. On this depends the interval that should be observed between advanced guard and main body, and the distance from the former to which the outposts should be pushed.

It is moreover sometimes necessary, with a view to making *reconnaissances* unconnected with the position and character of the cantonments occupied, but which have a more or less definite object connected with the next day's proceedings, to indicate certain points on which cavalry patrols under officers, etc., should be sent.

When orders have to be issued by the General commanding the Army Corps on establishing magazines or hospitals, the General Staff must first confer on the subject with the Field Intendant or the Army Corps Surgeon. A similar rule must be observed in the case of the General Staff officers belonging to Cavalry or independent Infantry Divisions.

3. CANTONMENTS (OR *Ortschaftslager*) CHANGED FROM DAY TO DAY ON THE MARCH WHEN NEAR THE ENEMY.

By these are meant the rest and quarters which troops endeavour to obtain from day to day during active operations, either after fighting or marching, keeping at the same time a close "touch" of the enemy. Under such circumstances to

command a free intermediate space or zone of approximately a day's march in breadth, by pushing cavalry to the front, is often out of the question. Consequently, the Army Corps or Divisions in first line, must be kept in a more perfect state of preparation for fighting, and every precaution should be taken to prevent the daily marching powers of the whole force being impaired by allowing certain fractions being moved to any distance on either side of the main direction of advance, on the plea of obtaining better quarters. The intimate connection that must therefore exist between the marching and fighting formations of a force, and the system that may be adopted for finding it quarters and shelter at such a period of active operations, together with the way in which outpost or scouting duties on the march must be closely connected and interwoven with those during the halt, are thus at once apparent. The result of such considerations, as well indeed as practical experience in the field, has in fact, shown that troops can, in most cases, only use as quarters the villages and houses that are situated either on, or about 1 or 2 kilometres on either side of, the road along which they are marching; under these conditions, even supposing the force in question to be kept *echeloned* along the road during the night in the formation in which it has been marching, or in that proposed for continuing the movement on the following day, it would be often quite impossible to get the whole force under the shelter of some sort of roof or other, though the buildings be crammed to the fullest extent. In spite, indeed, of the astounding numbers that we have often seen, under such circumstances, crammed into a village, when every hole and corner has been occupied, it must often happen that some, for whom there is absolutely no room, have to bivouack in the open on the outskirts. The latter contingency has indeed to be accepted by the larger part of the troops when, from tactical considerations, the force cannot well remain *echeloned* along the road in the order in which it has been moving, but must be closed up on the leading troops, so as to be in a better position ready to engage the enemy. In this case the force may be said to bivouack, cantonments being only available for very few (*Mas-senbivaks*).

It should nevertheless be constantly borne in mind, that even in times of great emergency, the most closely crammed cantonment is always, as far as is practicable, to be preferred to the bivouack. Consequently, in the selection of halting places on the march, this principle must always be recognised, in the absence of course of any valid reason to the contrary.

As regards the actual numbers that can be afforded cover in the various villages and farms, it is impossible to give in this work anything even like approximate figures. Troops occupy, in fact, every hole and corner where there is room for a man to lie down, without the slightest regard to the comfort or wishes of the inhabitants, and leave as few as possible outside. A large chateau or country house with numerous stables, barns, sheds, etc., can thus afford cover to a larger number of men than a village inhabited by four times as many people. Villages and buildings in the country again, are to be preferred to towns, the houses in the latter being only as a rule suited for infantry. To ensure fair play in the choice of quarters to the various fractions forming a force, is a matter hardly possible, and the various troops must be content to take what luck brings them. If any particular body of troops is found to invariably fare badly in this respect, it can only hope for some compensation in the way of quarters, when things take a more regular turn. The regimental staffs must put up in the same places as their respective corps, regiments, etc.

The position of *magazines* and *hospitals* cannot, it is unnecessary to add, in the case under consideration, be chosen to meet the requirements of troops crammed into cantonments lasting for one night only at a time; they must be placed more so as to agree with the general plans of operations contemplated for the particular period of the campaign, and cannot well therefore enter into the question we are dealing with under the present heading.

The *outpost arrangements* or measures to be adopted against surprise or attack, mainly depend on whether it is a question of seeking rest and shelter after an engagement or after a day's march, and whether all movements or active operations on the part of the enemy have ceased. To obtain correct infor-

mation as regards the latter point, and afford at the same time a first line of protection to the army whilst at rest, is then at once the business of the cavalry that are nearest the enemy. If an engagement has been fought and a victory won, the enemy should be followed up with all the forces available. In thus continuing to deal blows at the *morale* and fighting power of the enemy's forces, lies the best method of ensuring perfect rest for our own, during the halt that would then take place. The duty of following up and watching the enemy may then be left to the cavalry, the main strength of the army keeping at a respectful distance. Between the cavalry and the main body (each Army Corps, etc., in rear), there would then be an advanced guard which would occupy all the main roads with detachments, and thus afford the cavalry in front a support to fall back on. These detachments must make themselves perfectly secure by trusting to their own outposts, the supports (*Soutiens*) of the outlying pickets being allowed in most cases to occupy "alarm quarters" (*Alarm quartiere*.)*

After an unsuccessful action, it is usually desirable to at once retire with the mass of our forces to a considerable distance from the enemy. This movement should be protected by a rear guard; it should resist the enemy in any attempt to follow up his success, and thus enable the main body to rest during the night. The further back the main body has been able to retire, the more easy will it find the matter of cantoning.† The outposts of the rear guard should be strong, and serve as supports to the cavalry, which should, whenever it is practicable, be left next the enemy.

If they are to hold in strength the roads by which it is supposed the enemy will make his chief advance, care should be taken that communication between the different detachments posted for this purpose, is securely kept up, the connecting chain being strong enough at the same time to prevent all flying parties of the enemy from breaking through.

* By this is meant keeping the soldier accoutred and ready to turn out at a moment's notice, much as if he were "on guard."

† See remarks on interval to be observed between rear guard and main body, page 184.

But if the day's work simply comes to a close by a halt of the forces on the march, it is essential that before they are allowed to settle down to rest, correct information should be obtained as to whether the enemy with whom the "touch" has during the day, been either maintained or gained, has the intention of doing the same. If this is found to be the case, and it is evident that the main body of the enemy's strength is in a position dangerously near, it becomes indispensable for us to know whether he is inclined to attack us, to retire, or to remain in such a state of preparation for immediate action as to oblige us to dispense with finding cover for our troops in cantonments.

It is the business of the advanced parties of cavalry to obtain correct information *in right time* on the above, and in the case of a retreat, to ascertain beyond doubt how far the enemy has followed in the order of march, or in other words, in a formation showing an intention of continuing the movement. It is only when all doubts as regards these points are cleared up, that something like a decision can be safely arrived at; and the question must then be settled whether the enemy is to be attacked, whether his further advance is to be resisted, or whether it is deemed advisable to avoid coming to blows, by halting the main strength of our forces at a greater distance than was originally contemplated, or, as the case may be, withdrawing them further, so as to increase the interval separating the hostile forces. To enable troops to enjoy rest, but more especially to obtain some sort of cover in villages and buildings, there must be a considerable interval between the main bodies of the opposing forces; in this space the outposts must show their activity, and by their vigilance prevent anything approaching to a surprise on the part of the enemy.

It might perhaps be inferred, that if the action of one side depended upon that of the other—a supposition that has been accepted as the basis of the questions that have just been discussed—the opposing forces, by waiting for each other's plans to be developed, would neither of them be able to get any rest at all. As a matter of fact it sometimes actually happens, as the experience of past wars has shown, that both sides remain watching each other till nightfall. Whoever has witnessed this knows the

uncomfortable sensation such a state of affairs produces. The remedy indeed, in this case, lies in having a cavalry superior to that of the enemy, either in numbers or skill, and able to be beforehand in getting full insight into its adversary's position, numbers, strength, movements, intentions, etc. In most cases, however, the circumstances of the military situation force one side or the other to adopt some more or less definite decision and immediate line of action, which are accepted to a certain extent willingly enough by the opposite side, thus very much reducing any delay in bringing matters to an issue.

It is the duty of the General Staff, when once the situation is clear, to immediately see to the constant and uninterrupted observation of the enemy, by pushing cavalry well ahead with short but precise instructions. Directions must also be issued as regards the places where the advanced guard (or rear guard) and main body are to halt, and either canton, or partly canton and partly bivouack (*Ortschaftslager*), giving precise information as regards the villages, etc., to be occupied by the different tactical units, according to the "*Ordre de Bataille*" or particular organisation of the force in question at the time.

These dispositions should be made as far as possible as preliminaries to the measures that are to be carried out on the morrow, especially as regards any alterations contemplated either in the direction of march or distribution of the troops. Next, taking the reports sent in up to the last moment by the cavalry moving ahead of the force, directions must be given as regards any alteration that may be essential or desirable in the existing outpost arrangements, any special scouting parties to be sent under officers for particular purposes, etc., etc.

It may as well be remarked here that any change in the disposition of the outposts as darkness comes on, may be taken as contributing in itself to extra or additional security, and this is especially the case when the enemy is not far off. Any enterprise the latter may have planned on what he has been able to learn and see for himself during the day, would in all probability at once meet with a check, if our outposts were unexpectedly come upon in places that have been taken for granted by him as unoccupied.

4. CANTONMENTS BEFORE FORTRESSES OF THE ENEMY.

The question of finding quarters for the troops forming either the investing or besieging army of an enemy's fortress, is a subject of immense importance from the fact that a proportionately larger force in such a case would be constantly on outpost duty, and troops frequently called upon to perform duty of such a harassing nature should, when relieved, be given better quarters and more perfect rest.

The first condition is that the cantonments occupied by the troops should be completely out of range of the guns of the fortress. Consequently villages, etc., that are not at least 6 kilometres ($3\frac{1}{2}$ -miles) distant from the works of a fortress armed with heavy artillery, or not so situated as to be completely covered from their fire, cannot be considered now-a-days as fit cantonments for troops off duty. Bearing this in mind then, as well as the fact that in a blockade, and consequently *a fortiori* in a siege, of a fortress, it is essential that a strong force of advanced troops should be pushed forward close to the works of the place and invariably have immediate and ample support against the sorties of the garrison, it is at once clear that the rayon of cantonment of the investing or besieging force cannot be given any great depth. For this reason, and in spite of the great length of an investing line drawn right round a fortress, cantonments have often to be much more closely occupied than would be desirable from a sanitary point of view.

It would be a great mistake to try and partially remedy this evil, by allotting the cantonments available to the troops present, after deducting those that are on outpost duty (generally about one-fourth of the whole force), and thus only calculate on housing the troops that are off duty (or consequently only about three-fourths of the total force). Such a proceeding would lead to a constant changing of cantonments when the outposts were relieved, and the troops could not therefore be expected to take any trouble or interest in keeping the villages, etc., in the fittest state for habitation. The latter is a question of the highest importance in preserving both the health and spirits of the troops,

for nothing tends to depress the mind more than living in a dirty house presenting the picture of ruin. But this is sure to be the case when the soldier, being merely a bird of passage, does not know whether, after remaining for a few days in a building, he is ever likely to come back to the same place, or cannot say to what use the next visitor may put it.

If, however, it is clearly understood that the troops coming off outpost duty, always, as a rule,* are to re-occupy their old quarters, the men have a natural interest in keeping the buildings in a fit state for habitation, and even to go so far as to actually improve and repair them. Again by clearing the troops for a time entirely out of certain buildings, an opportunity is given of thoroughly ventilating and cleaning them out by fatigue parties told off and left behind for the purpose—a circumstance that cannot but be very desirable for sanitary reasons.

If after taking all the above questions into consideration it is found that the villages, etc., will be too closely occupied for any time, steps must at once be taken to build huts for a portion of the force.

The cantonments would, in the main, be allotted to the various Corps, Divisions, etc., according to the sectors of the circle of investment they occupy. The latter are determined on from tactical considerations, and in the case of a siege, with chief reference to the front or fronts selected for attack. The reconnaissances that would have to be made in the latter case, with a view to selecting sites for siege parks and dépôts, are naturally questions that chiefly concern officers of the Engineers and Artillery, but on their selection of such sites depends, to a certain extent, the question of cantoning the troops, as the greater portion of the artillery and engineers would have to be given cantonments near such places, or opposite the front or fronts attacked.

Outpost duty before an invested fortress is a matter that must be carried out on a strictly systematic plan, and is one which absorbs an enormous proportion of the forces present. To cut

* It need hardly be observed that this rule cannot be always strictly adhered to; troops must occasionally be moved and changes take place in the cantonments, from tactical reasons.

off all communication of the garrison of an invested place from the outside world, requires in itself a chain of advanced posts of a closeness that could not be thought of in a war of active operations. If the fortress be too closely approached, the investing troops would, from the fact that no cover would, as a rule, be afforded them near the place, whereas the garrison would be well screened behind their works, suffer constant and in the long run serious losses, whilst unable to inflict anything like corresponding injury on their adversaries. By keeping the circle of investing outposts, on the other hand, at a considerable distance from the works, the length of the chain easily becomes so great as to be out of all proportion to the strength of the investing force. A mean between the two extremes must therefore be arrived at; this is best done by keeping further off and in a thinner line by day, when objects can be more easily distinguished, and approaching closer and in a thicker line by night, taking care at the same time not to invariably occupy the same positions. Every effort must, at the same time, be made to get cover for the outposts, and to constantly increase and improve the protection thus afforded. In the first place it shields them from the enemy's fire, and secondly it enables them to better resist his sorties.

Field works of this description, either as shelter trenches or rifle pits for the outlying sentries and their supports, with covered communications, or the fortification of points to be held by the reserves (*Gros*) of the outposts until the arrival of support, cannot be undertaken too early, and cannot be overdone. The most distinct orders must be issued on the subject by those in highest authority, and steps at the same time taken to see that they are rapidly and properly carried out. Work of this description is all the more disagreeable to troops in this case, as in many instances it is a labour that is not in the immediate interests of the men forming the working parties. The outposts being constantly relieved and changed, it is of course nobody's business to begin. And yet it is perfectly clear that the stronger and more securely the outposts are made by such works, the more perfect will be the repose of the troops in cantonments behind them, and the more extensive may the rayon of the latter be.

No doubt must exist as to those portions of the line of outposts that may be abandoned on being attacked by the enemy in superior force, and those that are to be held, at any rate, until the arrival of reinforcements. In the latter case provision should be made for the speedy arrival of support.

It should, moreover, be clearly understood that any point temporarily abandoned to the enemy during a sortie, should be immediately re-occupied on the latter being repulsed. Otherwise it would certainly have been better not to have occupied it in the first instance, even for purposes of observation only. If possession of the point in question is desirable for the latter purpose, there is all the more reason for regaining it after it has been temporarily abandoned, even if it be only on account of the bad moral effect its permanent loss would produce. Looking at it again in a practical point of view, the besieged and besiegers would, by such a proceeding, change their respective *rôles*, were the former to gain, and the latter lose, ground in the course of an investment. The besieger should, therefore, take the necessary steps beforehand with a view to facilitating the recapture of the point, by removing all obstacles that would impede his attack, or in other words, making it as open and indefensible as possible to the rear.

It may nevertheless sometimes happen that a certain point of this description may prove a bone of contention between the opposing forces, and it may, under certain circumstances, be justifiable on the part of the besieger in certain isolated cases, to finally give up the idea of recapture. Such a step is, however, always, as a rule, to be avoided on principle, and there should never exist any doubt on the subject on the part of the outposts. An investment in fact which allows the garrison of a place to maintain possession of points temporarily won in a sortie, ceases *ipso facto* from that moment to really exist as such.

The suddenness and rapidity with which an active enemy bent on a determined resistance, can direct sorties, great and small, against a blockading force, absolutely require every possible means being resorted to on the part of the latter, with a view to obtaining timely information on the designs of the

garrison, and spreading the necessary information, as far as is desirable, among the investing forces.

One of the first things necessary with this view, is the establishment of *observatories* on commanding points whence a good view, in spite of their necessarily being at a distance from the works of the place, can be obtained with powerful telescopes, and the massing of troops for sorties, etc., detected. Intelligent and highly trained officers should be posted at such observatories, and the latter should be in telegraphic communication both with each other, and with the head-quarters of the Army Corps and the different Divisions, etc., posted opposite the various points of the blockaded fortress. The telegraph should also connect the head-quarters of the different Divisions, etc., both with each other, and with the head-quarters of the Army Corps they belong to; the latter should also be similarly connected with points of special importance in the line of investment.

Army Corps head-quarters should be established on points where the exercise of such a high and important command appears most desirable; in most cases such points would be somewhere near the line of demarcation between two sectors of the circle of investment that appear most exposed to the sorties of the garrison. If when the investment of a place is complete, actual siege operations are contemplated, Army Corps head-quarters would of course not be placed too far from the front selected for attack, and against which the Corps was acting. Those of the Divisions, etc., would, as a rule, and if there were no valid reasons to the contrary, be placed behind and as far as possible centrally as regards the lengths of the investing line held by their respective units.

All these questions must be carefully considered and weighed by the General Staff from the very first days of the investment, so that during the course of the latter there may be little cause for uncertainty and no necessity for change.

The selection of positions for *magazines* and *hospitals* is a comparatively easy question in the case we are at present dealing with. The investment of a fortress might certainly be said to be a somewhat impossible undertaking, unless com-

munications with home were kept open, and, unless as a rule, the blockading force commanded the country or a zone round the place for a distance of several days' march. There would then be sufficient space and the means at hand to collect and fill magazines and establish hospitals. These would of course be placed in a somewhat dangerous predicament on the approach of an army for the relief of the place, or were communications interrupted for any considerable time. It is therefore very desirable that such magazines should be equal to providing for the wants of the force for some little time together, without receiving regular supplies, but such a state of affairs could not, of course, continue for any considerable time.

5. CANTONMENTS DURING AN ARMISTICE.

As far as is practicable every advantage should be taken of an armistice, to repair losses both as regards men and *matériel*. Cantonments should therefore be selected with this object, but should nevertheless not be scattered to such an extent as to seriously interfere with the feasibility of a timely concentration with a view of recommencing active operations. An armistice of a few days' duration can consequently be turned to very small account in the matter of repairing the wear and tear of warfare; but it enables troops to rest, and often affords an opportunity of regulating and placing on a proper footing the supply services of an army of every description, that may have been more or less thrown out of gear by any rapid movements of the fighting forces. To widely scatter troops in cantonments and turn the resources of large tracts of country to account, are measures that can only, as a rule, be resorted to when the armistice is one that is to last for a considerable time, and can only be broken off by giving notice of several days beforehand. The latter then affords time for the concentration of troops from extended cantonments.

It is generally the custom to define a neutral zone of some one or two days' march in breadth between the hostile armies to be kept free of troops of either side; this enables outpost duty to be dispensed with as a precautionary measure against

surprise, etc., and the troops would thus be only called upon to perform ordinary guard duties in their cantonments. The latter should under these circumstances be as extended as possible, the infantry and the greater part of the artillery being assigned the towns, the cavalry the country, and columns and trains distributed so as to best meet the wants of the troops.

If during the armistice the country occupied is that of the enemy, the local means of transport and draught animals would be requisitioned to the full extent for conveying supplies, removing the sick, etc., before resorting to the vehicles and teams belonging to the army; for it should be remembered, these would often be just as much in want of a rest and refit as any other troops.

The plan of distribution of the troops in the various villages, etc., must be subordinated in the first place to any particular military reasons, such as, for instance, the uninterrupted investment of a fortress still in possession of the enemy (even though provision be made for such in the clauses of the armistice), the occupation in force of certain important points, etc., etc. The details would be carried out in conjunction with the civil authorities of the country. The latter would be equally desirous in an enemy's country of distributing as far as possible the burden among the inhabitants according to the resources of the various districts, towns, or villages. As long as military considerations are unaffected by their proposals, it is advisable, as a rule, to be guided in the main by them.

All questions affecting the repair of losses caused by the wear and tear of war must be undertaken by the General Staff, in conjunction with the heads of the various departments concerned. To such belong, the filling up of gaps in the ranks by the arrival of reinforcements in men and horses, medical precautions in the broadest sense of the term, replenishing and issuing ammunition, supplies, clothing, equipment, repairs to arms, field stores, etc., etc.

The Tables of Marches for any concentration likely to take place on the armistice coming to a close, together with the Tables of Quarters for the cantonment of the troops when concentrated preparatory to commencing fresh operations, should be prepared

and drawn up without delay, and it is scarcely necessary to add, in an enemy's country, without any reference being made to the civil authorities.

It is again very necessary, especially when occupying a hostile territory, to issue distinct orders on the allowances in money, rations, etc., sanctioned for the troops whilst cantoned during the armistice, to fix the rate of exchange to be observed between the money of the country and that of the country to which the troops belong, to define the functions and power exercised by the civil authorities under the military, and to notify the punishments the inhabitants may expect for any offence or act committed against the security and welfare of the army, or for non-compliance with, or offences against, orders that issued, etc., etc.

The final working out in detail of all these questions does not always rest, it is true, with the General Staff; the latter must nevertheless always take a comprehensive view of all such matters, be the initiating authority, and see that nothing is lost sight of or neglected.

b. CAMPS.

Tent encampments are rarely used in the presence of the enemy; they might firstly, perhaps, be used by the garrison of an invested or besieged fortress with the object of keeping a force between the *enceinte* and advanced forts, so as to be immediately ready to act in support or under cover of the latter. Existing stores of tents may also sometimes be turned to account in affording a certain amount of shelter to prisoners of war at a favourable time of the year. But in this case they must be replaced on the approach of inclement weather, by huts provided with some kind of heating apparatus.

Encampments formed of huts of straw or brushwood are used by a force investing a fortress. The outposts, occupying as they do, the same positions throughout the blockade, soon find it necessary to get the best kind of protection against inclement weather, that does not interfere with the performance of their particular duties. Small straw huts or shelters are soon seen springing up in various directions for the outlying sentries;

cover, in nearly every case of an improvised nature, is obtained for the pickets (*Feldwachen*), care being at the same time taken that such arrangements are well screened from the enemy's fire; and wooden huts may even in certain cases, be erected to accommodate the reserves (*Grossere Soutiens*).

Everything that can be done in this respect to diminish and ease the hardships necessarily imposed on the soldier in war, is what no commanding officer who has the health and strength of the forces entrusted to his authority at heart, can omit or neglect.

C. BIVOUACKS.

The *bivouack* is the most convenient arrangement in a *purely tactical* point of view, but it very seriously affects the *health* of troops, especially in bad weather. The rule that the worst cantonment is better than the best bivouack, is one that cannot for a moment be doubted; but it is nevertheless constantly broken. Very often it arises from a certain anxiety or desire to keep troops as much as possible together; at other times—and this is a mistake—it is perhaps thought advisable to spare the troops a short lateral march, and they are consequently ordered to bivouack on the spot instead of finding them cantonments; and it sometimes happens that it is the result of a carelessness and recklessness which cannot be too strongly condemned. To bivouack instead of cantoning is a proceeding which is only justifiable when troops *must* be held ready to fight at a moment's notice, as in the case of those that are on outpost duty, or when it is absolutely necessary to mass troops as closely as possible. Thus, putting aside the few days preceding or following engagements on a large scale, it would only be resorted to when troops were retiring through a country in a state of insurrection, and even then the plan of occupying villages, farms, etc., on the *Ortschaftslager* system (see page 188) is one that should always, as far as possible, be preferred.

If, however, troops *must* bivouack, and there is no help for it, the *choice of the sites* to be occupied is a question requiring the greatest care. In the first place the ground chosen must be screened from the enemy's observation, and be in the immediate

vicinity of a sufficiently good defensible position. Troops never bivouack in their fighting formation, with the single exception of the case when, after an indecisive struggle, the ground which has been maintained or won is jealously guarded, rifle in hand, during the night, against a renewal of the contest at a moment's notice. In all other cases it is desirable that the bivouacks of a force should be *behind* the ground or position it is to occupy, so that the latter may be occupied or held by an advance *from* them. The ground occupied by the bivouacks must, however, be *sufficiently near* the position to give the troops ample time to fully occupy it betimes, in case the enemy develop an offensive movement. Consequently good communications, as little as possible exposed to the enemy's enterprise, both between the bivouacks and the position, as well as between the bivouacks of the component parts of a large force, are in every way, highly desirable. Care should also be taken that the reserves in moving into the positions assigned them, should be prevented as far as possible from making anything like a retrograde movement from the ground they have bivouacked on. Thus, it is evident that a force when bivouacking is in a more or less *echeloned* formation depending chiefly on the space or ground it requires and, so long as it remains in the vicinity of the main roads of a country, naturally more or less on the order in which it is advancing or retiring.

As infantry, even when bivouacking, is far more quickly got into fighting formation than cavalry or artillery, it should be assigned bivouacks, the position of which affords the two latter arms a certain amount of protection. If cavalry and artillery have to bivouack by themselves, some kind of natural or artificial obstacle between them and the enemy, efficiently protecting them against the latter, is, under certain circumstances, very desirable; but it must not be forgotten that the kind of protection thus afforded can in most cases be only reckoned on in itself, as giving security against a sudden cavalry attack, and not against infantry or artillery fire. It would thus appear that ground that is not open in character, situated either in front or on the flanks of cavalry or artillery bivouacking, is highly dangerous unless occupied by infantry.

Next to the above considerations which have been deduced from reasons of a purely tactical character, come those that have to be observed in the interest of the rest and welfare of the soldier. The practice that may still occasionally be observed in peace time at great manœuvres, of causing a force to bivouack in what may be called its parade formation (*Paradebivouaks*), is of course quite out of the question in the presence of the enemy.

A dry subsoil, shelter from sun or wind, the proximity of villages, the advantages offered by small wooded tracts, the vicinity of good drinking water, facilities for obtaining firewood, straw, and if possible, provisions, close by, are all questions of the highest importance, and conjointly with considerations of a tactical character, often make it desirable to divide a force into small separate bivouacks, giving the troops greater facilities in the way of establishing cooking places, latrines, etc. In the case of infantry, a thinly planted wood always forms good bivouacking ground; and cavalry and artillery may with advantage bivouack on the outskirts or edge of a wood furthest removed from the enemy, provided the ground in the immediate neighbourhood is not such as would impede their movements, and the wood itself is occupied by infantry. The latter may also get a certain amount of protection from the weather by bivouacking under the lee of bushes or copse standing over a man's height. To bivouack very close to, or on either side of, a main road where there is much traffic, should, as a rule, be avoided. The dust that arises from a road may often prove a real nuisance, and the noise produced by constant traffic seriously interfere with sleep and rest.

The space or room required for bivouacking has now to be considered. In the first place the principle that "the more roomy the bivouack is, the better," must, at any rate, in war time, be put aside when other and more important considerations would suffer. Consequently, though the following may be taken as the normal spaces required by German troops on a war footing and fully equipped for the field, it may nevertheless be well to observe that under certain circumstances, it may be impossible to avoid still further diminishing the dimensions given.

Infantry always bivouack in (battalion) double columns of half companies formed on the centre (*Kolonne nach der Mitte*),* cavalry by regiments in columns of squadrons, and artillery in line.

The following are the spaces required :—

Infantry.

A battalion. . . .	160 metres front, 280 metres depth.
A regiment. . . .	512 „ 280 „
A brigade (six bat- talions) in two lines	512 „ 560 „
Do. do. one line	1,040 „ 280 „

Cavalry.

A regiment. . . .	175 metres front, 215 metres depth.
A brigade (two regi- ments)	366 „ 215 „

Artillery.

A battery	96 metres front, 175 metres depth.
A division (four bat- teries)	432 „ 175 „

Pioneers bivouack as infantry, their columns and trains as artillery.

The space required by trains and columns may, as a general rule, be taken as that occupied when parked, or—

A six-horse waggon, 8 metres front, 20 metres depth.

„ four „ „	8 „ 16 „
„ two „ „	8 „ 12 „

the waggons or carriages being placed in rows one behind the other.

Men and horses require in addition about twice as much room for bivouacking, picketing horses, etc.

Consequently the total spaces required, may be approximately taken as :—

* Corresponding in the English drill, to a double column of companies (8 companies), formed on the two centre companies.

and a division of field artillery. The card applied to the map, at once enables the officer to judge whether the ground available is sufficient for the purpose. The sites selected for the various bivouacks are then indicated to the adjutants in attendance, and these would at once rejoin the corps or regiments on the march they represent, and act as guides to them. Should the adjutants of any corps, etc., be for some reason or other, not in attendance on the General Staff officer at the time, mounted orderlies furnished with a written note would be despatched to the officers commanding the corps, etc., in question, in their stead. Such orderlies as are not required for duties of this nature may in the mean time be employed in looking for water (the map in the first instance acts as a guide in this respect), and in examining the villages and houses to be turned to account by the Division (where the employé of the Intendantur would at the same time proceed with a view to ascertaining the supplies they may be able to furnish), and other similar useful duties. The General Staff officer would next personally verify on the spot the reports he received on the water supply, with special care, and assign the various sources of supply to the different units of the force—the orderlies that accompany him acting as guides to the latter, immediately they arrive on the ground.

The matter of finding and issuing straw and firewood, as well as the question of supplies of food and forage, are things that chiefly concern the employé of the Intendantur, but he must nevertheless come to an understanding with the General Staff officer before submitting any proposals to the Divisional commander on such questions, so that the various corps or regiments should, as far as possible, be directed to obtain both their drinking water and supplies from the same village or place. If, however, such simple arrangements as these be for various reasons found impossible, the different villages, farms, etc., must be searched by foraging parties specially detailed by order of the General commanding the Division, and the supplies found by such means, distributed to the troops; fatigue parties of the latter would be detailed to proceed to the places where such supplies were collected for issue, to fetch their respective shares.

All such matters are questions which the General Staff officer must ascertain in the shortest possible space of time, so that, riding back and meeting his general, either on the road, or at his quarters, he may be able to at once inform him of the various positions he has chosen for the bivouack, and submit without delay the different orders that may appear necessary. As the Divisional Commander would on this, in a great many cases, accompany the General Staff officer himself to the outposts, it is desirable that one of his adjutants should be sufficiently informed of, and instructed to draw up, any further orders that might appear necessary to enable the troops to settle down in their bivouacks.

In the case of a bivouack after an engagement, the steps to be taken would in many respects be more simple, at any rate as regards the troops that bivouack on the actual scene of the conflict, though there would be many other questions immediately connected with the action that had just come to a close, which would require all the attention and energy of the General Staff officer. Such questions will, however, be separately considered in Chapter IX.

CHAPTER VI.

SUPPLIES.

THE question of feeding large armies during active operations in the field, may be looked upon as a problem as yet in the main unsolved, and as one indeed that will always remain so. There are certain circumstances and conditions which, it is true, if properly understood and judiciously turned to account, would enable an army to be regularly and fully supplied during the course of a campaign. By far the most important of these are—first of all, success in carrying out the operations contemplated against the enemy, and next a judicious system of supply, and an uninterrupted use of the existing communications, etc., of the country.

In many cases, however, the latter are found interrupted or destroyed, and this of itself is sufficient to effectually prevent any system of regularly forwarding and issuing supplies at the right moment, from being carried out—and herein lies the great difficulty to be dealt with. Again, there is the question of whether it is absolutely necessary that supplies must be constant and uninterrupted.

War essentially ignoring, as it does, by its acts of violence, the importance of the preservation of human life, and calling for, even off the battle-field, the highest sacrifices and the greatest efforts from all till the weaker succumb, naturally demands every now and then, that certain hardships as regards the necessaries of life must be endured.

Just, however, as every General in command must try his very best to attain the desired results on the field of battle with the smallest possible loss to his own side, and just as the Commander-in-chief and his General Staff must do the utmost in their power to direct the movements, etc., of the forces they are

manceuvring, so that the strategical object in view may be arrived at with the least amount of fatigue, hardship, and effort on the part of the troops under their orders, so must those that are in military and administrative charge of an army equally consider it their duty to see that the soldier is provided with food, as regularly issued and as good in quality, as is possible under the circumstances. But this must nevertheless never be considered as a question of the first or highest importance. To spare troops in battle, to exact the least amount of hardship and fatigue on the march and in the bivouack, and to ensure regular supplies, are, strictly speaking, after all, matters of secondary importance and must only enter into the general question as such.

These ideas may, to many, appear somewhat barbarous and inhuman. But on the one hand war is in itself a cruel and inhuman proceeding, and on the other, by not submitting at the right time and place to certain losses, sacrifices, and hardships, we run the risk of losing the game altogether, and of entailing in the long run, the most serious losses and the greatest misery and suffering, as would, for instance, be caused by a signal defeat. A certain recklessness commensurate with the stakes that are being played for, may consequently, under certain circumstances, really prove based on sound judgment. But such a theory must never, on any account, be used as a cloak for crass ignorance or carelessness. On the contrary, we must scrupulously endeavour to secure troops the very best supplies of food, and allow this consideration to carry due weight with it in drawing up or carrying out our plan of operations.

The question may perhaps be asked—whether the matter of securing supplies for an army in the field, may not be reduced to some such hard-and-fast rules as govern other questions of military organisation for war. In the first place, the history of past wars shows that such a system has not only been tried in practice, but has invariably been found to be both prejudicial to vigorous military operations, and to the supply of good food to the soldier.

Formerly wars consisted as a rule, of a series of disconnected undertakings separated by pauses of longer or shorter duration,

during which either hostilities practically ceased and only existed politically speaking, or the opposing forces were withdrawn so far apart, that either side could turn its attention to the question of supply, without troubling itself about the doings of its opponent. Such a state of affairs naturally rendered the question of the supply of food a comparatively easy one, from the fact that during such pauses the belligerents could widely scatter their forces to subsist, and when the resources of the country were exhausted, change their position. The supplies for expeditions that were only intended to last for a short time were collected beforehand and carried with the troops. The small size of armies at the time enabled this to be done.

Modern wars, *i.e.*, those that have taken place since, say, the peace of Westphalia, have, owing to the increased efforts made by the Governments of different countries, been carried on in a more systematic and connected method; the actual object for which the war is undertaken, is now kept more distinctly in view, and such arrangements are made in accordance with it from time to time, as regards supply, as may satisfy the wants of the army under all circumstances. There were, it is true, long pauses in the wars of the seventeenth and eighteenth centuries, chiefly caused by the opponents retiring into regular winter quarters. But the temporary cessation of hostilities thus brought about, was more the result of climate or unfavourable weather than the difficulty of obtaining the necessaries of life.

The change of system may be seen from the fact, that whereas in the wars of Louis XIV, armies were removed to winter quarters in distant provinces to enable them to be properly supplied with food, we find nothing of the sort taking place in the Seven Years' war.

The question of supplying, much as that of raising or forming an army, was a matter affecting the Government itself and not the country or State, and this gave rise to a system of supply independent of, and separate from, the actual army itself, springing up alongside it and weighing as lightly as possible on the country.

The method indeed, by which armies were fed in those days, consisted in obtaining supplies from a distance either by

direct purchase or State contribution, collecting them in magazines, and conveying them by specially organised means of transport to the army, when in the case of bread, it was baked, and finally fetched by the troops themselves with their own means of transport which belonged to, and accompanied them.

There was a tendency in making war to always be independent and keep clear of the country itself and its inhabitants, much as in the question of raising and forming armies. The result was, that war became indeed more conformable to rule, more connected in character, and was made more in accordance with the object or political reasons for which it was undertaken, but military operations were at the same time very restricted and terribly lacking in energy and vigour.

An army, in fact, was tied to its magazines, obliged to limit its movements to the fetching and carrying power of its transport, and nothing was more natural as the result of all this, than the cutting down and economising of all supplies to the utmost. Such a system, artificially and carefully planned and entirely independent of the country, both crippled the energy of warlike enterprise and starved the army.

The brilliant results obtained by the rapid marches and surprisingly bold enterprises of the Great Frederick, are all the more striking if we remember the system then in vogue of feeding troops in the field, but at the same time there can be no doubt, that had he been unfettered by such arrangements, his exploits would have been far greater. His opponents again, it should be remembered, used the same system, but it must be admitted, never once managed to turn it to such good account.

Cavalry certainly lived on the forage of the country, for the artificial system of feeding an army referred to did not extend to providing forage for horses, owing to its enormous bulk. A horse's ration weighs five times as much as a man's, and the number of horses in an army amounted in those days to as much as one-third, or even one-half, of its total strength in men.

The French Revolution, inaugurating as it did, a new system of raising armies—the conscription—introduced with it a new way of feeding them in the field. There was in the latter, it is true, at first, no system, or at any rate, no method or order.

The armies of Revolutionary France took by force all they could lay their hands on ; but they lived entirely from hand to mouth, without paying the slightest regard to the question of turning the resources of the country to the best account, and of enabling them to make a prolonged stay in the same place. The French in fact, fell into the fault of going to extremes, and of recklessly doing in every way exactly the reverse and opposite of the system that had hitherto been followed. It was only indeed when Napoleon brought order and method to bear on French military institutions, that something like a mean between the old and new systems was arrived at, or in other words, use was made of means of any kind that suited the circumstances. Neither the system of magazines, nor that of requisition was neglected ; both were to a certain extent united, and used together, so that their respective merits could be turned to account according to the requirements of time and place.

The problem of feeding an army in the field has again of recent years been facilitated by the use of railways and the partial substitution of preserved for fresh provisions. The administrative authorities of an army have now-a-days constantly to collect magazines and establish them in accordance with, and following, the movements of the troops. The latter when moving rapidly live as much as possible on the country. Under difficult or critical circumstances, *i.e.*, when large masses of troops are concentrated in a small space, such as happens before decisive battles are fought, recourse is had to the provision columns, and finally to the *iron ration* carried by the soldier. The whole art of feeding an army consists in finding the system that is best under the circumstances at the time, and only in absolute cases of necessity, falling back on the supplies the troops carry with them.

a. RATIONS.

The regulations on the rations in kind issued to German troops in the field, give the following as the normal quantities to be observed.

1. The soldier's ration to which every officer, soldier, and employé belonging to the mobilised army, has a right as long as

the army is in the field, consists of the daily *bread ration* and the daily *meat, etc., ration* (*Brodportion und Viktualienportion*). The former consists of 750 grammes (1 lb. 10·35 oz.) of bread or 500 grammes (1 lb. 1·63 oz.) of biscuit, and may, if the meat ration be for any reason reduced, be increased to 1,000 grammes (2 lbs. 3·27 oz.) of bread, at the discretion of the General commanding the Army Corps. The daily meat, etc., ration is as follows :—

- a. 375 gr. (13·226 oz.) of fresh or salt meat (weight when raw), or 250 gr. (8·817 oz.) of smoked beef or mutton, or 170 gr. (5·996 oz.) of bacon or salt pork.
- β. 125 gr. (4·408 oz.) of rice, groats, or barley meal, or 250 gr. (8·817 oz.) of pulse (peas, beans, or lentils), or 250 gr. (8·817 oz.) of flour or meal, or 1,500 gr. (3 lbs. 4·7 oz.) of potatoes.
- γ. 25 gr. (·8817 oz.) of salt.
- δ. 25 gr. (·8817 oz.) of coffee (in roasted berries), or 30 gr. (1·058 oz.) if unroasted.

The vegetable ration may, when practicable, be replaced by 1,170 gr. (2 lbs. 9·266 oz.) of turnips or other root vegetables, or 125 gr. (4·4083 oz.) of fruit for baking, or 340 gr. (11·992 oz.) of *Sauerkraut* (pickled cabbage). These articles are, however, neither stored in magazines nor carried in provision columns.

When troops are compelled to bivouack, or have to undergo exceptional hardships, the coffee ration may, at the discretion of the General commanding the Army Corps, be supplemented by a ration of brandy of 0·1 litres (·704 gills), and similarly the meat ration may be increased to 500 gr. (1 lb. 1·634 oz.), and the vegetable ration to 170 gr. (5·996 oz.) of rice, etc., 340 gr. (11·992 oz.) of pulse, or 2,000 gr. (4 lbs. 6·54 oz.) of potatoes.

Under certain circumstances, when such can be procured by requisition, etc., the General commanding the Army Corps may, in addition, sanction the issue of a ration of 1 litre (1·76 pint) of beer, $\frac{1}{2}$ litre of wine, 50 gr. (1·7634 oz.) of butter, and 50 gr. (1·7634 oz.) of tobacco per man, and when in the enemy's country, the coffee ration may even be raised to 40 grammes (1·1639 oz.)

It is well to observe that it is very undesirable and preju-

dicial to discipline, to inform troops of any desire that is entertained of raising their rations, without being quite certain that such a measure is possible beyond all doubt. On the other hand, troops should always, if possible, be informed in orders, of any diminution contemplated in the normal rations that are being issued, as well as of the extent to which any change is proposed in their quality, by the substitution of preserved for fresh provisions.

When troops are being conveyed by rail, they are given the following money allowance in addition to their rations, to enable them to purchase small luxuries :—

For a journey of from 8 to 15 hours 25 *pfennigs* (3*d.*) per man.

“ “ 15 to 31 „ 50 „ (6*d.*) „

“ “ 31 to 39 „ 75 „ (9*d.*) „

“ “ 39 to 47 „ 100 (1*s.*) „

For every additional journey of 8 hours, the allowance is increased 25 *pfennigs* (3*d.*).

2. *The Forage ration* is either *heavy* or *light*.

The *heavy ration* is :—

5,650 grammes (12·450 lbs.) of oats.

1,500 „ (3·306 „) of hay.

1,750 „ (3·858 „) of straw.

The *light ration* is the same as the heavy ration, except that the allowance of oats is only 5,000 gr. (11·023 lbs.)

The heavy ration is issued for horses of general officers, the Adjutantur, the War Ministry, the General Staff, and Engineer officers, for all horses of the cavalry, artillery, and Intendantur, for the draught horses of all officers holding high commands, corps, regiments, and administrative branches, and the field post, and for draught horses requisitioned or hired, or belonging to military canteens.

The light ration is issued for riding horses of mounted infantry, rifle, pioneer, and train officers, and for the horses of such other mounted officers and employés as are not entitled to the heavy ration.

When horses are being conveyed by rail, an extra allowance of 1,500 gr. (3·306 lbs.) of hay, and 1,000 gr. (2·204 lbs.) of straw is issued *per* horse. If the journey lasts for more than 8 hours,

the extra allowance of hay may be increased to 3,000 gr. (6·612 lbs.) for every additional 24 hours.

Should it be necessary, owing to circumstances, to substitute other articles instead of oats, 500 gr. (1·102 lb.) of the latter may be taken as equivalent to :—

550	grammes (1·2125 lb.)	of barley.
650	„ (1·4320 „)	of rye.
450	„ (·9920 „)	of flour or meal.
350	„ (·7716 „)	of pounded biscuit.
750	„ (1·6530 „)	of bran.
1,400	„ (3·0858 „)	of hay.
2,800	„ (6·1716 „)	of straw.

When compressed forage is being issued, care should be taken to invariably ascertain and fix beforehand, in every case, the exact relation such forage, etc., bears to forage in its ordinary state.

b. SYSTEMS OF SUBSISTENCE.

1. SUBSISTENCE FURNISHED WITH QUARTERS.

The system of finding the soldier food and quarters together (*Quartierverpflegung*), i.e., causing him to be fed as well as housed by the inhabitants on whom he is quartered or billeted, depends, in the first place, of course, on the possibility of quartering troops on the country, and is by far the most agreeable plan to the soldier. The latter, at the end of the day's march, finds in this case, as a rule, his meal ready cooked and prepared, or at any rate has to trouble himself very little with cooking or preparing it. Consequently this system, when possible, should be preferred to others. But in a great many cases it is impracticable, at times from the scarcity of food and provisions in the district, and must be supplemented by food provided by the soldier, or issued from magazines.

Food is, as a rule, always to be found for several days together in every town or village; consequently troops in about the same numbers as the inhabitants of a place, can always be provided with subsistence without any difficulty for a single

day, and as a matter of course, a less number for more than a day, depending on the strength of the force.

Large populous towns are therefore well adapted for receiving and feeding strong bodies of troops, as a formidable force (at any rate of infantry) can thus be closely massed in a comparatively small space. The country offers less facilities for such purposes, though taking the case of from 3 to 4,000 inhabitants per from 50 to 60 sq. kilometres (19 to 23 sq. miles), circumstances might be well considered unfavourable, if no more than from 3 to 4,000 men could find subsistence in their quarters on such a space, for a single day. A much larger number of men than this can, however, in nearly every case be safely reckoned on, as food and provisions are always to be found in much greater quantity, in proportion to the inhabitants, in the country than in towns. The latter in fact are supplied with food, as a general rule, from the former.

The peasant or farmer has generally in his cottage or house a bread supply equal to his household wants for from 8 to 14 days, a sufficient store of vegetables and forage to last until the next harvest, and more head of cattle than would supply himself, his family, and his servants, with meat for a whole year.

It is quite possible, therefore, when a country has not as yet been occupied by troops in strong force, or has only been recently weakly occupied, to find when quartering troops in villages or farms, sufficient food for a force amounting to three or even four times the number of the inhabitants; assuming then that an Army Corps (in round numbers some 35,000 men and 10,000 horses) advancing by two roads, would occupy a depth of about 15 kilometres ($9\frac{3}{4}$ miles), it would require, in order to be able to live for one or two days on the resources of the country in a district of average population and fertility, a breadth of not more than 7 or 8 kilometres ($4\frac{1}{2}$ or 5 miles). And it would in addition be even quite possible in most cases for a second *echelon* following at a short interval, to do precisely the same.

Such conditions are indeed extremely favourable to military operations, even in the case of very large armies; they are, however, liable to fail when, for instance, the country has been

already exhausted, either by the fact of our own or the enemy's armies having previously passed through it, or when, owing to the communications of the country at certain points being bad—such as would, for instance, be the case when marching through mountain passes—villages and towns situated on or near good roads, have practically alone to bear the burden of finding supplies for the troops.

In such cases, as indeed when an enemy has made a considerable stay in a district, even though the latter be itself a rich one, the resources of the country must be supplemented by bringing supplies for the army from a distance.

It may therefore be safely inferred from the above, that in a country of average population and fertility, an army of from 100,000 to 120,000 men can, without being so far separated as to compromise its co-operative action in case of an engagement, perfectly well subsist without magazines or any special arrangement for supply, during an advance that is only interrupted by halts of single day's duration for rest at a time.

Napoleon often made war in this fashion, and the system answered perfectly so long as operations went on without a check, and did not necessitate any prolonged stay in one particular place.

But if circumstances are unfavourable, if the population be thin, the land unproductive, and the country already considerably exhausted by the movements of troops; if again the harvest of the preceding year has been a failure, or operations are taking place at a time of the year immediately before the harvest or gathering of the crops, an army, if it is to live as much as possible on the country, must be spread on a broad front, must be less exacting, and must even to a certain extent be supplied by other means. The latter may consist in some cases, in forwarding supplies to the army from magazines established in rear, in others in collecting supplies of food from neighbouring countries and districts. It may, under certain circumstances, be even necessary to have recourse at certain points, to the provision columns, and as an extreme measure, to the three days' *iron ration* carried by the soldier.

2. SUBSISTENCE FROM MAGAZINES.

Magazines are established either with a view to supplement the resources of certain districts which otherwise would be quite unequal to meet the demands for subsistence made on them, or to act as dépôts for replenishing the provision columns and the *iron ration* carried by the troops, as well as in certain cases to directly supply the latter with food. In the former case they are stationary, remaining at the same points for fixed periods of time, and in the latter they change from place to place, according to the movement of the army, following the principal lines of railway and main roads. In certain cases the position of a magazine might fulfil both conditions.

The selection of points where magazines are to be established is a question depending in the first instance on military requirements, and in the second, on the character and quantity of the resources available wherewith to fill them, and on the means of communication for bringing such supplies to the spot.

Magazines intended to supplement the resources of a country or district should be so situated that no cantonment drawing supplies from them is at a greater distance than 15 kilometres ($9\frac{1}{2}$ miles).

As a general rule the different villages, etc., are called upon to provide transport for the conveyance of supplies to the troops, but the military vehicles belonging to the latter, may nevertheless be employed to a certain extent for the same purpose.

Magazines that are changed from one place to another, following the operations of an army, are, as a rule, best established at railway stations, or in their immediate neighbourhood. Such magazines often increase in size, and become magazines on the line of "communications" (*Etappen magazine*), from the very fact that places of importance, situated on a line of railway, are often, at the same time, points where many roads meet, and are well adapted for the establishment of hospitals, sick horse dépôts, etc.; they would moreover, as a rule, be occupied by a garrison or force which naturally would require to be supplied by some kind of permanent arrangement.

Magazines are *filled* at home or in a friendly country by

forced contributions in kind, by contract, or by direct purchase. In the enemy's country, the principle that an army should live at the expense of the enemy, is equally applicable when it is being fed from magazines—or in other words, the latter should be filled, so far as it is in any way possible, from the resources of the enemy's country. When direct requisition no longer meets the case, supplies may be obtained by purchase, care being at the same time taken that the cost of such purchase is covered by taxes levied on, or money contributions exacted from, the country. Communication with the mother country must, however, be invariably and uninterruptedly maintained, so that the supply of such stores as might at any time fail, may be at once sent from home.

The *issue* of supplies from magazines to the troops, putting aside those that are quartered on the spot, is a question that must be provided for, by either letting the troops fetch their supplies themselves by means of country carts belonging to the villages, etc. they are quartered in, or with their own military transport, or sending them their supplies by means of transport placed at the disposal of those in charge of the magazines. In either case it is equally desirable that the distance should not exceed a certain limit, at the utmost some 20 kilometres ($12\frac{1}{2}$ miles), but should this be unavoidable, the troops would have to be supplied by the provision columns, and these would, under such circumstances, have to be brought nearer the magazines to replenish with such articles of supply as had been issued to the troops.

When troops are being fed from magazines, the most important conditions to be maintained may be summed up as: the repair of any communications that have been destroyed or injured, a proper system of turning these to the best account, and finally, provision for numerous and efficient means of transport.

3. SUBSISTENCE BY MEANS OF THE PROVISION COLUMNS.

The supplies carried by either the provision (*Proviantkolonnen*) columns or park carriage columns (*Fuhrparkkolonnen*), should be considered as in reserve, and only to be used when troops can neither be fed by the inhabitants on whom they are

quartered, nor from magazines, nor be supplied with provisions brought from a distance.

The Intendantur might indeed be complimented on having performed its duty in a most perfect and faultless manner, if at the close of a campaign it could be said that it had never once been found necessary to fall back on the provision columns, except for the purpose of merely making use of articles to be replaced by others fresh from store. If the provision columns must be turned to account, and there is no help for it, every effort must be made to at once replace the articles consumed, and cause the provision columns to immediately rejoin the troops to which they are attached. A provision column being emptied of its contents, must proceed at once to a point where a magazine is established, or failing this, some place where a *dépôt* of supplies has been established (by requisition or some such means), fill up, and return to the troops by making a double march; in a great many cases indeed, it would have to march by night, as the roads would by day be used by the troops.

During an advance, a provision column would, with the view to issue supplies to the troops, be brought forward from second *echelon* at the end of the day's march, to some convenient point whence the different waggons, according to the description of stores they contain (*see* pages 59–62), would be either despatched to the various corps and regiments, or else the latter would fetch with their own transport from the place where the provision column stood, such provisions as they required. In a retreat, the provision column would remain for such a time halted at some point corresponding to where the day's march is to end, until the parties told off from the troops to fetch provisions arrive.

As a rule, a provision column that has been emptied of its stores has immediately afterwards to undertake a night march; in the case of an advance, to reach some magazine established further in rear, and in the case of a retreat, both to leave the roads clear for the army to follow by, and get a start before it, and even if possible, before the first *echelon* of trains, etc.

It is evident that it would be impossible to expect an army

to subsist on the supplies carried by the provision columns, during an advance lasting for any time. In a retreat, it is true, the system in theory, at any rate, appears more feasible, but in this case it is well to remember that its practical application is liable to be seriously interfered with by the action of the enemy, which might indeed, in some cases, bring about a totally unforeseen change in the direction of retreat.

As a rule, directions for the movements, etc., of the provision columns, are given by the General commanding the Army Corps after conferring on the subject with his Chief of the General Staff and Field Intendant.

To permanently attach the provision columns to Divisions would certainly, to all appearances, considerably diminish the work of those who are in military command, but such a proceeding would nevertheless by no means free the latter from the duty of seeing that all the troops forming the Army Corps were properly supplied, and being held responsible for it. It is always possible to temporarily attach such columns to a force, either during a given march or movement, or to facilitate the matter of finding quarters or cantonments, or again when a Division, for instance, is detached for any considerable time. Even smaller bodies may, under such circumstances, be given for a time a provision or "park carriage" column, or in some cases even only half a one.

4. SUBSISTENCE BY REQUISITION.

Requisitions to be carried out in a regular and orderly manner, invariably require, as a first condition, the rayon in which a force, a body of troops, or a military authority has a right to make such requisitions, to be distinctly and clearly defined.

Requisitions on large districts are made to collect large quantities of supplies with a view to establishing magazines, replenishing provision columns, etc., and are carried out in accordance with directions given by the Intendantur (generally of the "Communications"), and as far as is practicable, with the assistance of the civil authorities of the country. Troops only take part in such matters to overawe by their

presence any unwillingness on the part of the inhabitants to comply with such requisitions, or indeed, to crush any resistance that might be offered. In either case requiring the assistance or co-operation of troops, matters should be conducted with the utmost severity, and every endeavour should, if possible, be made to obtain and carry off, independently of such subsistence as is being furnished by the inhabitants directly to the soldiers quartered on them, *more* supplies than were originally demanded. When again, it is necessary to subdue any resistance on the part of the inhabitants, a money contribution should, in addition, be exacted as a fine. Finally a careful estimate must be made of the *utmost* that can possibly be expected from a country, making due allowance for the absolute wants of the inhabitants, and taking into consideration the question of supplementing their resources by bringing supplies from a distance. Astonishing results are sometimes produced by purchase, the money for such purposes being obtained by contributions levied on the country.

Direct requisitions followed by the *immediate issue on the spot* to the troops, of the supplies obtained, generally take place when troops bivouack, the troops themselves co-operating in an orderly manner. The villages, farms, etc., situated in the rayon assigned to the troops for purposes of subsistence, are divided among the latter according to their position and resources. The quantities of food required are collected by parties of men in charge of an officer, with the assistance, if possible, of the head men of the various villages. In the subsequent issue of the supplies obtained, the Intendantur should see that the quantities issued to the various troops are equalised, whenever the amounts obtained from certain villages, fall short of what is required or expected. Instructions should be given to advanced guards and cavalry detachments moving ahead, to collect supplies over and above the quantities that satisfy their own requirements, and hand them over to the troops following them.

Requisition by the individual soldier on his own account must not for a moment be tolerated, and should be punished as

an act of plunder. As a rule, it is found that a tendency to acts of this description generally takes place when troops are quartered on the inhabitants, and in most cases is to be accounted for by the soldier not receiving from his host such food as he is reasonably entitled to. In such cases, it is the duty of the officer to step in, and promptly put an end to any refusal or resistance on the part of the inhabitant, by punishing him. This may be often a very disagreeable proceeding; but it is the only way to maintain discipline on this point, and if once discipline be relaxed or affected in one particular respect, it soon becomes generally impaired. The interest taken by the officer in the welfare of his men in the matter of seeing that the soldier gets his proper ration of food, as well as in other respects, tends to increase his authority and strengthen the bonds of discipline.

5. SUBSISTENCE BY MEANS OF THE "IRON RATION."

By "*iron ration*" is meant the food actually carried by man and horse, and may also include the provisions carried by the regimental transport.

The soldier carries by regulation, three days' rations of bread (or biscuit), rice, bacon (or preserved meat), coffee, and salt; the troop horse one day's allowance of oats. Three days' allowance of oats for all draught horses and for the riding horses of the artillery and train, are carried partly on the horses themselves and partly on the carriages and waggons. One day's allowance can, in addition, be carried by the regimental transport.

It is of the greatest importance that the above rations, putting aside of course, their being necessarily consumed when it is desirable to replace them by a fresh issue, should be carried intact and never touched until, when all other means of subsistence fail, it is absolutely necessary to have recourse to them. There is always the danger of the soldier, until he has learnt to know what it is to suffer from want of food, being easily apt to lose or get rid of his *iron ration*, so as to diminish the weight he has to carry. Again, it may sometimes happen that the rations are consumed before the moment arrives when they are intended

to be used. Such irregularities can only be checked and prevented by minute and constant inspection.

C. APPLICATION OF THE VARIOUS SYSTEMS OF SUBSISTENCE.

If under the conditions of modern warfare, an attempt were made to bind an army as regards its supplies, to any *one* particular form or system of subsistence, it would soon be found utterly incapable of making war, or at any rate would be at a great disadvantage when opposed to an army living by different ways according to circumstances.

The system of subsisting entirely on magazines means hopelessly hampering and interfering with military operations. General and Intendant would, in fact, change their respective rôles. To feed the soldier again, at the expense of the inhabitant on whom he is quartered (*Quartierverpflegung*), is a plan that can only be safely relied on when the army is sure of an uninterrupted advance through a rich country that has not recently had to support troops in any numbers; but on the other hand it might possibly happen that, this being the only available means of subsistence, the advance would necessarily have to be continued. As soon, however, as a halt becomes either desirable or necessary, recourse must be had to magazines. The provision columns and the *iron ration* provide for any unforeseen cases that may occur, and may be used to a certain extent when an army is executing very rapid movements in a closely concentrated formation. Under such circumstances, it would be impossible to expect large masses of troops to be fed by the inhabitants on the "*Quartierverpflegung*" system, and any magazines that it might have been possible to establish, could not meet the demand, for want of time. Finally the most advanced troops can live by requisition on the country, and by the same means small expense magazines may be rapidly established to supply, at any rate, some of the wants of the troops that follow.

Supplies are generally found to fail shortly before and after decisive battles are fought, and when, in a victorious advance, the lines of communications become very long, and means of

transport cannot be established as fast as the army advances. To forward supplies from the rear becomes then a difficult matter, and those found in front are soon eaten up, as an enemy would in retiring, in all probability, have already greatly exhausted the country, and in most cases have carried off or destroyed, as far as he had been able, all that he could not consume. To advance on a broader front, as the only means of facilitating the matter of living directly on the country, is in such cases a question to be settled by the military considerations of the situation. The forage question under such circumstances becomes a matter of exceptional difficulty, as owing to its enormous bulk, to forward large supplies of forage when the means of transport are deficient and the distances great, is almost a matter of impossibility. To be exceptionally strong in cavalry and artillery, would under such circumstances, from this point of view, be a doubtful advantage. Very numerous trains would indeed prove a positive burden, and every horse belonging to them beyond what is absolutely necessary, a positive evil. To reduce everything under this head to what is only really indispensable, is therefore very desirable, and must be carefully borne in mind in the organisation of an army.

Though in the question of providing for the wants of an army as regards supplies, just as in the matter of handling or moving troops, no hard-and-fast rules can be laid down to be invariably followed, we may nevertheless by carefully examining the various phases of military operations, deduce certain principles which, as the result of past experience in war, appear well worthy of consideration. It is well first of all, to point out that the real difficulty does not lie so much in the matter of *obtaining*, as of *issuing*, supplies. As regards the former question, there are in the first place all the resources of trade and private enterprise, and more particularly a large number of individuals at hand always ready to make money by undertaking contracts. The Intendantur may perfectly well make use of such persons as regards the question of obtaining supplies, but to entrust them with the matter of issuing them is quite out of the question.

The province of the contractor ends in fact, as a rule, where

the operation of forwarding supplies to the theatre of operations commences. The free use, indeed, of the various means of communication which would be made use of by the different contractors in forwarding supplies to the army, might certainly now and then prove of advantage to certain bodies of troops when they had to deal with a contractor who knew his business well; but the question of supply as a whole would be certain to miscarry, were the means of communication not regulated by the military authorities, and managed with a view to meet the various requirements arising from time to time.

The contractor has, in the main, but one object in view, and that is to forward and dispose of as quickly as possible the particular article he supplies; it is of little or no importance to him, whether that particular article is in reality most wanted at the time or not. A judicious use of the available, and always in a certain sense limited, means of communication, necessarily requires such articles of supply to be forwarded as are most wanted at the time, according to the degree of urgency, and this is a matter that the military authorities are alone competent to deal with. The latter consequently should take especial care that all means of communication or transport—from the railway train to the requisitioned country cart—are made the best use of in bringing in proper time to the troops such supplies as they most require at the moment.

To do this, a highly organised system, and the orderly co-operation of a large number of persons, such as is to be found in the German "Communication" service (*Etappenwesen*), are indispensable. At the point where the province of the authorities in charge of "Communications" ends, that of the administrative departments (*Branchen*) belonging to the troops in the field, begins. Where the authority and responsibility of the two meet and end, must be most carefully defined. The troops again, take themselves a certain share in the matter of finding subsistence, as has been already referred to in the matter of making requisitions, carrying the *iron ration*, etc., and the regimental transport has often to be used to bring them supplies on the spot.

The different phases in the operations of war may be classed

as:—mobilisation; the conveyance by rail or marching by road of the army to the points of concentration; the pause that takes place in the rayon of concentration; and finally the actual operations of the campaign. And inasmuch as it would be extremely difficult in dealing with the last phase, in which every conceivable kind of situation of the most opposite character might occur, to go beyond what has already been given under the heading of general considerations, it appears all the more desirable to lay down certain definite rules to be observed during the stages in the war, preceding the actual commencement of hostilities.

Troops are supplied during the period of mobilisation in precisely the same way as in time of peace. In places (as for instance, the large garrisons) where for purposes of mobilisation, it is necessary under certain circumstances, to billet troops in the neighbouring villages situated more than 20 kilometres ($12\frac{1}{2}$ miles) from the place, magazines must be established to facilitate supply, much as is done in the annual manœuvres. A similar thing happens when larger masses of troops arrive in succession at a point whence they are to be despatched by rail, and near which they must consequently be, for a short time, at any rate, quartered. During the period of mobilisation again, the provision and park carriage columns have to be completed with stores, the *iron ration* must be procured and issued to the troops, and such articles of food as do not rapidly deteriorate, supplied to the field hospitals and bearer companies.

As regards the stores to be supplied to the provision and park carriage columns, the rules to be generally observed, are given at page 58; the first supply or consignment, which takes place in the Army Corps district, would generally, as a rule, be confined to two days' supply of biscuit and four days' supply of preserved meats, vegetables, coffee, and salt. The park carriage columns would be filled up, half with oats, and half with flour and and *Victualien* rations.

Directions are issued by the General commanding the Army Corps on the articles of food that are to form the *iron ration* of the soldier; it is very desirable that such articles should be of a highly nutritious character, and yet neither heavy nor

bulky; consequently in addition to coffee and salt, the *iron ration* would generally consist of rice, biscuit, and preserved meat; the two latter, together with the oats forming the *iron forage ration*, are supplied by the Intendantur; the remaining articles may be procured by the troops themselves. In addition to such rations, troops would be provided with an additional *one* day's rations for man and horse, of the same nature as the *iron ration*, which, carried by the regimental transport or on the horses, would provide for the first day's subsistence after leaving the railway.

During the railway journey, hot meals (including coffee) are supplied by the railway authorities at certain fixed halting-places sufficiently far apart. The necessary arrangements, as well as the matter of establishing canteens and providing drinking water for men and horses at railway stations, are undertaken in conjunction with the Intendantur authorities of the district in which the station happens to be situated. At the actual point of embarkation troops would receive an allowance of bread, oats, and hay for the entire journey by rail.

Troops that reach the rayon of concentration by road alone, may in a great many cases subsist on the march on the *Quartier-verpflegung* system. If necessary this may be supplemented by magazines.

During the period of deployment into position immediately preceding the commencement of hostilities (*Aufmarsch*), the forces engaged in the movement cannot possibly subsist on the country comprised in the manœuvre (*Aufmarschterrain*), without the assistance of magazines; it would be quite impossible to feed during such a period—lasting invariably as it does several days together—the large masses of troops thus assembling in a comparatively narrow space, on the resources of the country alone. Consequently, transport of the army by rail must comprise from time to time, with a view to establishing magazines, certain trains laden with supplies alone, chiefly consisting of flour and oats. With a view to assist in converting the former into bread, it is therefore very desirable that the field bakery columns should proceed as early as possible to the *Aufmarschterrain*. The question of responsibility within the rayon of the latter, is defined by making

the *Field* Intendant responsible for the supply of the troops as soon as they reach their final cantonments, and the *Etappen* Intendant responsible for their supply whilst on the march from the point of disembarkation to the latter. The somewhat difficult matter of seeing that the troops are properly supplied during this time, is to a certain extent facilitated by the fact of the troops having with them on leaving the railway, rations for one day. The horses and regimental transport are, it is true, somewhat overweighted by this measure, but the extra load lasts for *one* day's march only.

At any rate, this is a better plan than to attach, as has been often proposed, to each train conveying troops, vans or trucks containing provisions for even several days' consumption. On the troops leaving the train there would always be the risk, in the first place, of finding insufficient means of transport to carry such supplies further; and secondly, there would often be no space available at the point of disembarkation for their temporary storage. To immediately and rapidly unload all trains is absolutely necessary to prevent any interruption in the traffic, and consequently if this plan were followed, the supplies carried would be easily spoilt. It is well, therefore, to limit the amount of food and forage carried by any corps or regiment to, what its horses and regimental transport can carry when loaded to the utmost.

In other respects the principle laid down that during this period of a war, every corps or regiment is entitled to draw, or as the case may be, complete, its daily supplies from the nearest *Etappen* magazine, and have moreover such supplies conveyed to the spot by the transport belonging to the magazine, simplifies considerably the arrangements to be made, and mainly depends on the matter of providing well filled magazines.

It is desirable, as a rule, that the supplies for the following day should be issued in the evening; the soldier is thus provided with food for the next 24 hours—a circumstance of no small importance, especially in the course of active operations. Were this precaution not taken, troops would often, after a hard day's work, be without food until very late.

As regards the question of supply whilst operations are

going on, the rule (regulating at the same time the spheres of responsibility of the different functionaries) has been laid down, that the supplies required by the troops in first line are to be obtained from the country in which they are operating (consequently through the Field Intendants), that the *Etappen* authorities have to supply what is next wanted, and finally, that the authorities at home have to assist these in all they require.

It may be inferred from the above, that if one of the conditions to ensure the proper supply of an army in the field, mainly rests on making the best use of the resources of the country forming the theatre of operations, in the shape of food, forage, communications, and transport, the question may perhaps be asked whether, in order to impede the advance of an opponent, either when acting on the defensive or retiring, the theatre of war may not be systematically laid waste. To carry off or destroy everything in the shape of food not wanted by the defenders, to fill in wells, break up and destroy roads, withdraw all horses and beasts of burden, etc., etc., might certainly answer such a purpose ; but what frightful misery would such proceedings inflict on the unfortunate inhabitants who would thus be forced to quit their homes and dwellings, and how terribly would such a plan tell against the defenders, should they assume the offensive—and they must always, after all, look forward to doing so, when the proper moment arrives ! In wars of a purely national character, when whole nations, exasperated, take part in the bitterest way in the fighting, such proceedings are possible, and, as happened in the war of 1812, in Russia, may be considered as a noble act of patriotic self-devotion. If, however, the conditions of the case be otherwise, any plan proposed of systematically laying waste a country, can only be very partially carried out, and consequently have but slight effect ; and it is quite possible, that even looked upon in the light of true patriotism, it might not produce sufficient effect to remove certain touches about it approaching the ridiculous.

Any proposal of resorting to such measures in one's own country, must find an echo in the hearts of the whole nation to have either any moral or physical effect on the enemy, and

as in the case of a retreat in hostile territory, would moreover, mean in addition, deliberately depriving ourselves of certain very valuable means of assuming the offensive at a future date.

These remarks must not be taken to apply to the case when—just as a bridge is blown up to prevent the enemy from immediately seizing some important point—it becomes necessary to destroy the supplies collected in a magazine, which cannot be removed, and would otherwise fall into the hands of the enemy.

CHAPTER VII.

ON MAINTAINING THE FIGHTING EFFICIENCY OF
ARMIES IN THE FIELD.

ATTENTION has already in the course of this work, been more than once drawn to the importance of being careful to never, under any circumstances, take such steps as regards the employment or use of troops, as unnecessarily interfere with their being constantly kept in fighting condition. It has especially been pointed out as desirable when giving directions for marching or quartering, that troops should be spared all hardship and fatigue not absolutely unavoidable on military grounds, and that every opportunity should be given them of having access to their baggage trains, to make full use of such articles of store as are carried by their regimental transport (*Wirtschaftsfahrzeuge*). But even were such considerations allowed to carry the greatest possible weight, they would scarcely suffice to permanently maintain troops in a state of fighting efficiency; the serious falling off in men, horses, and *matériel* that inevitably accompanies any kind of warlike undertaking, cannot be avoided even by the most judicious arrangements in the employment of troops; and certain organisations consequently become necessary which, connecting the army in the field with sources of supply at home, or as the case may be, using the resources of the occupied portion of the enemy's country, keep up a regular and constant supply of such articles as are necessarily expended, and fill the gaps caused by war.

The resources of the enemy's country can, generally speaking, only include such supplies as food, forage, raw material only as regards clothing and equipment, and a certain amount of draught horses or animals, but very little as regards either

remounts or draught horses for military purposes; and, as, moreover, all such supplies, both as regards quantity and quality, must always be of an uncertain and doubtful use, any organisation intended to maintain the fighting efficiency of the army in the field, must depend on the communications with the mother country being properly maintained. It consequently follows that an army cannot exist for any time, at any rate, in the field, without uninterrupted communication with home; strategical considerations therefore include as much the question of covering our own as of severing the enemy's, communications; this idea has been carried so far as to have led to the expression that strategy may be said to teach us the wants of armies. This definition, though in itself somewhat too narrowly drawn, has nevertheless its useful side in the case in point, in drawing attention to the importance of the subject under consideration. Well organised arrangements under this heading greatly tend to facilitate and assist the military command of an army in the field, just as do good tactical subdivisions, efficient armaments, etc.

In former days, and during the wars in the early part of the present century, the *main* and *country roads* were the only communications by which the wants of an army could be permanently supplied, the latter being used to transmit correspondence by, and the former as the lines of march of reinforcements, trains of ammunition and supplies, convoys of sick and wounded, etc., etc. The bodies of troops of the different arms, forming the reinforcements marching on the *lines of communication*, afforded at the same time an immediate protection to the roads and to the points where magazines and *Etappen* stations were established. Such a system worked but slowly and clumsily whilst an army continued to advance, and the latter was often obliged to check its onward movement, to enable reinforcements and supplies to come up. Armies could, indeed, strictly speaking, only fill up gaps and make good losses, when halted for a considerable length of time, as for instance, during an armistice.

Now-a-days the communications of an army in the field depend mainly, and as far as possible, on *railways* and *telegraphs*;

Transport by main and country roads is only used as an accessory. Railway transport is so enormously superior in conveying large masses of men, horses, and stores of every description, that it would be impossible to neglect such an important factor. Unfortunately, railway traffic is extremely liable to interruption of various kinds, and the protection of lines of railroad, when opposed to an energetic and enterprising enemy, is, especially on hostile territory, an exceedingly difficult undertaking. A few determined men provided with such means of destruction as science has of late years produced, can rapidly, and consequently with less risk of being discovered, destroy a line of railroad at certain exposed points to such an extent as to render it unfit for traffic for a very long time to come. Troops being conveyed by railway are again unable to protect the line, as during the actual journey they are practically powerless. Consequently, troops specially intended for the protection of railroads, etc., become absolutely necessary.

The more difficult then the matter appears of maintaining a system capable of yielding such good results in constant and uninterrupted working order, the more necessary does it appear to have recourse in this province to the strictest centralisation—represented according to the present organisation of the German Army, in the person of the *Inspector-General of Communications and Railways*, belonging to the Head-quarter Staff of the Commander-in-chief. To carry on the duties connected with the "Communications," there are, working under him, a staff, and further the *Inspectors of Communications*, one to every Army or to every Army Corps acting independently. Under his orders are also placed:

The Director of Military railways (*Chef des Feld-Eisenbahnwesens*).

The General Intendant of the Army.

The Director of the Military Medical Department (*Chef des Feld-Sanitätswesens*).

The Director of Military Telegraphs. (*Chef der Militairtelegraphie*.)

The Director of the Field Post (*Feld-Oberpostmeister*).

a. THE COMMUNICATIONS OF AN ARMY IN THE FIELD.

(Das *Etappenwesen*.)

The Communications of an Army in the Field extend from the different Armies or Army Corps to the Army Corps districts at home, and are confined as far as possible to the railway. The lines of communication of the different Armies or Army Corps, together with the rayons or districts belonging to, and situated on either side of, them are fixed by the directions of the Commander-in-chief of the Forces in the Field. When there are no instructions issued to the contrary, the authority of the *mobile Etappen* authorities extends from the limits of the rayon actually occupied by the forces operating in the field, to the frontier of the mother country, or as the case may be, boundaries of such districts of the enemy's country as have been placed under the administration of a Governor-General. Beyond the limits thus defined, matters pass into the hands of the authorities at home, or as the case may be, Governor-General. The chief object of the "Communications" department (*Etappenwesen*) may be said to be :—

1. Forwarding *personnel* and *matériel* of every description from the mother country to the army.

2. Sending or despatching home all men, horses, and *matériel* either temporarily or permanently sent to the rear, and consequently the sick and wounded, officers and men on command, prisoners of war, superfluous or damaged arms and equipment, and trophies, arms, and prizes taken from the enemy.

3. Finding quarters and subsistence and otherwise assisting and providing for the wants of men and horses either on their way to join, or returning from the army, so long as they remain in the districts of the *Etappen* authorities.

4. Protecting and maintaining the lines of communication, the maintenance and repair of roads, bridges, telegraph lines, postal communications, the military occupation and defence of all communications, and the superintendence of the military police in the district under their authority.

5. The organisation and administration of the government

of the enemy's country, provided such country has not been placed under the orders of a Governor-General.

The *Director of Military Railways* has, by making judicious traffic arrangements on the various lines of railway concerned, to do all in his power to assist the working of the "Communications" department. His assistants in this matter—the *Military Railway Directors* (for lines in the theatre of war) and the *Line Commandants* (for certain lines at home), as well as the *Station Commandants* acting under the orders of the two authorities first named, and finally the *Railway Section of the Great General Staff* taking the place at home (*Stellvertretend*) of the Railway Section of the Great General Staff in the field (under which are both the Line Commandants and the supervision of military traffic on other home lines of railway), act independently of the *Etappen* authorities. By fixing the position of "*Uebergangsstationen*," the points where civil or peace traffic ends and military or warlike traffic begins, is defined, and consequently the limits of authority of the two railway departments above referred to, marked out.

The point where the line of communications of an Army Corps begins (*Etappen-Anfangsort*), or the point where all trains carrying supplies, etc., for the Army Corps in question, converge and start from, or where all trains returning, diverge from, is fixed by the officer taking in war the place of the Corps Commander (*Stellvertretendes General Kommando*). To provide for the enormous accumulation of men and stores taking place at such a point, the place chosen must be provided with a large railway station well suited for embarking troops and stores, and have with the immediate neighbourhood, great facilities for housing and feeding troops.

The Inspector-General of Communications and Railways fixes on every line of railway leading to where the army is operating, a *station of assembly* (*Sammelstation*), or point where all trains coming from the different Corps districts at home, converge with a view to being despatched on the different lines of the theatre of operations. The Inspector-General fixes, moreover, on every line leading to near where the army is operating, a *terminus* (*Etappen-Hauptort*), or last point on the line

where military traffic ceases, and whence the contents of the various trains arriving are despatched to the different Army Corps, etc., or where *personnel* or *matériel* is collected from them with a view to being sent home; such traffic has to be carried out by the roads of the country.

Whilst the *Etappen Anfangsort* remains fixed or stationary, and the *Sammelstationen* are only changed under very exceptional circumstances, the *Etappen Hauptorte*, on the other hand, are liable to constant change according as operations progress or traffic is re-established on lines that have been temporarily rendered useless by the enemy.

At the *Sammelstationen* where the *Line Commandants*, as a rule, establish their head-quarters, depôts of military stores of every description are in course of time formed, from the fact that supplies of all kinds arriving from the rear, cannot be always, for various reasons, immediately despatched to the troops. Only trains conveying *troops* or *ammunition* pass the *Sammelstationen* without, as a rule, making any stoppage.

As regards the despatch of trains containing provisions drawn from supplies stored in magazines established at the *Sammelstationen*, the *Intendant-General of the Army* gives directions on the supplies the train is to be laden with, whilst the *Director of Military Railways* gives instructions on the despatch of the train. Arrangements such as these, requiring perfect understanding on the part of the two authorities in question, must, in the first place, avoid all crowding on the lines of railway—a circumstance soon producing interruption in the traffic—and secondly, see that the army gets such articles of supply as are most urgently wanted at the time. All trains coming from the army in the field and returning home should always, if possible, pass the *Sammelstationen* without making a stoppage of any duration.

The *Director of the Military Medical Department* is the central directing authority of the medical department in the theatre of war. His functions will be more clearly defined further on.

The *Director of Military Telegraphs* regulates the whole telegraph service in the theatre of war. The means at his disposal for carrying out the duties of his office have been

already referred to in the description of the War Formation of the German Army (page 76).

The *Director of the Field Post* is responsible for the maintenance and working of postal communications in the theatre of war, and sees, that the duties in the various post-offices are efficiently performed. Though all field postmasters and all field post-offices and stations are under his immediate orders, he has nevertheless himself to conform in all matters of a technical postal nature with the directions of the Postmaster-General (*General Postamt*).

The above may be taken as a brief description of the various central authorities of the *Etappen* service, belonging to the Head-Quarter Staff of the Commander-in-chief, and it now only remains to examine the *Etappen* service of an Army, or an Army Corps acting independently.

This is placed under an *Etappen Inspector* who, on the one hand is responsible to the Inspector-General of Communications and Railways, and on the other to the General commanding the Army, or as the case may be, Army Corps acting independently. The composition of the staff of an *Etappen Inspector* has already been given at page 44. In addition to the troops placed under his orders that would be necessary to guard and protect the *Etappen* stations, roads, and railways included in the rayon defined as belonging to the Army or Army Corps, the following, to enable him to carry out such duties as come with his province, are also placed at his disposal: a reserve hospital dépôt, a reserve bakery column, a commission for the transport of the sick and wounded, and from every Army Corps forming part of the Army: a park carriage column, the Field Hospital Director, the *personnel* for the *Etappen* hospitals, the *Etappen* detachment of field gendarmerie, and a *personnel* sufficient for three *Etappen* commandantships* (see page 74).

The *Etappen* Inspectorships should be formed as early in the campaign as possible, indeed their existence as early as when the army is engaged in its strategical deployment (*Aufmarsch*),

* Not to be confused with *Station Commandants* under the *Director of Military Railways* (see page 74).

should be manifested by the establishment of magazines, etc. The *Etappen* Inspector has in fact, to see that the army is properly supplied at all times and places, foresee again what it may probably want, protect its communications and rear, cause all that it requires to be conveyed to it without hitch or hindrance, and similarly remove all that is an incumbrance or no longer necessary. For such purposes he must consequently be constantly kept *au courant* by the Commander-in-chief, of the movements and employment of the various forces and bodies of troops, and informed as early as is practicable, of all orders that are drawn up and plans of operations contemplated. With a view to enable him to forward reinforcements and supplies, the whereabouts of the different units—down to, say, the regiment or body of corresponding strength—must again be constantly communicated to him. He must take care that he is in constant personal communication with the General commanding the Army, and establish his head-quarters as near the latter as the exigencies of his department permit. The Generals commanding Army Corps and independent Divisions must be kept informed by him either directly, or through the General commanding the Army, of the position of the *Etappen-Hauptorte*, the *Etappen* roads, and the places where *Etappen* hospitals and dépôts for sick and supernumerary horses, are established.

The *Etappen* Inspector is responsible in the rayon in his charge for the security of railway, telegraph, and postal communications, as well as for the repression in rear of the army of all acts of insubordination and disorder, whether committed by soldiers or civilians, using if necessary, the utmost severity in checking any tendency to such irregularities. He has for such purposes, in the first place, the field gendarmerie, and secondly, the troops acting immediately under his orders. The latter would be used both to permanently garrison and hold the most important points, and scour the country comprised in the rayon by the constant movement of small flying columns. Points permanently held should, if necessary, be strengthened by fortifications, and the garrisons holding them amply provided with stores and supplies of every kind. They thus form excellent magazines (or dépôts), and halting places on a line of communi-

cations running along a line of railway, or in the absence of such, on the roads fulfilling the same object.

In the above sketch, an attempt has been made to give a general idea of the organisation of the communications of an army in the field, and of the various offices or functions connected with the same; and it now appears desirable to touch on a few other points intimately connected with the question of maintaining the fighting efficiency of an army in the field. The matter of supplies has been dealt with in Chapter VI; and we have consequently now to deal with the medical care of the soldier, the supply of arms, ammunition, clothing, accoutrements, and field equipment, and finally reinforcements and remounts.

b. THE MEDICAL CARE OF THE SOLDIER.

Modern wars, notwithstanding the great increase in the numerical strength of armies, show very great improvement in the medical care of the soldier. The great strides that have taken place in the surgical and medicinal sciences have of course very materially contributed to bring about such results, but it is nevertheless impossible, without the assistance of an efficient and sufficiently extensive organisation, to expect science and skill alone in such matters to attain the ends desired.

The soldier on active service cannot in the first place devote the same care and attention to his health, as can a private individual in easy circumstances comfortably at home. Under certain circumstances, he is called upon to make efforts, undergo privations and hardships, and face the elements to such an extent and degree, that the strongest alone are able to bear the strain. But these are not the only causes of sickness; soldiers fall sick at times *en masse*, and sicknesses of this description often degenerate into epidemics attacking even those who would otherwise be able to bear all the hardships of a campaign. Under such circumstances it is impossible to give the sick soldier the same medical attention and comfort, as can be done in the garrison hospital at home. And this is again seen to be the case in a far worse light when, immediately after a victorious battle, the conquerors find enormous numbers of wounded left on their hands. On such an occasion, the sympathy we naturally have for

the sufferings of our fellow-creatures urges us to do the utmost in our power to assist and tend without loss of time, the unfortunate soldier lying maimed on the field of carnage from wounds received in the service of his country. To carry out such good intentions, however, would require in the first place, such an enormous medical *personnel*, and secondly, such a huge amount of transport and hospital stores, that no number of surgeons would appear sufficient, and the *impedimenta* considered necessary would hopelessly hamper the movements of an army under ordinary circumstances, and invariably fail to be on the spot in sufficient quantity at the right place when required. The organisation of the military medical service in time of war may consequently be said to be based on a kind of compromise between what would appear to be desirable and what is practicable—and the meaning of the latter expression may, it is unnecessary to add, be variously interpreted. Time has shown in fact, that we have only approached very nearly to what is practicable. This may be inferred from the details that were given on the medical service of an Army Corps, in the chapter devoted to the war formation of the German Army (page 63). There being then no doubt that this organisation is insufficient to meet the requirements of sick and wounded *en masse*, but that it must nevertheless follow the army everywhere in its movements so as to be constantly at hand when required, attempts have been made to facilitate matters by calling in the assistance of the Societies for Aid to the Sick and Wounded, and connecting the system with the *Etappen* department, thus facilitating communication with the mother country.

In the first place the *Etappen* department enables the *personnel* and *matériel* of any field hospitals that have been established, to be replaced and renewed. For this purpose the *Etappen Inspectorship* has at its disposal an *Etappen hospital personnel* and *reserve hospital stores*. The new hospitals formed by such an operation are styled "*Fixed War Hospitals*" (*Stehende Kriegslazarethe*), and with the *Etappen Hospitals* specially established, are under the *Etappen Inspector*. The latter is represented by the *Etappen Surgeon-General*, and acting under his orders, the *Field Hospital Directors*.

The *Etappen* department has again to see to the matter of sending home all sick and wounded that can be moved. The Director of the Military Medical Department has for such purposes at his disposal a certain number of specially arranged *Hospital Trains* (*Sanitätszüge*); these by arrangement with the Director of Military Railways, he causes to be brought forward, and just as in the case of trains conveying invalids (*Krankenzüge*), has despatched to certain points where *Commissions for the transport of the sick* established for the purpose of distributing the invalids, cause the latter to be conveyed to, and received in, the various *Reserve Hospitals* established at home.

This *system of evacuating the sick* thus forms the basis of the entire military medical service in the field, inasmuch as it not only enables the field and fixed hospitals to be ready again for use in the shortest possible time, but is calculated to prevent a great accumulation of sick and wounded at any particular place—a circumstance always to be avoided—and to ensure them better medical treatment and greater comfort in hospitals removed from the scene of hostilities, and better provided with the necessary *personnel*, appliances, etc.

Depôts for sick horses are established on the *Etappen* roads by order of the *Etappen* Inspector, as circumstances require, for the temporary reception of such horses as are no longer required by the troops, and cannot be received in the *mobile* horse depôts of Army Corps. Veterinary *personnel* for these are appointed by the Intendantur taking the place at home of the Intendantur in the field (*Stellvertretende*), on application of the *Etappen* Inspectors, by engaging civil veterinary surgeons.

C. SUPPLY OF ARMS AND AMMUNITION.

Any demand for *arms, ammunition waggons, and artillery carriages* is made directly to the Officer commanding the Artillery of the Army Corps, and is forwarded by him to the General War Department (*Allgemeines Kriegsdepartement*). On instructions being given by the latter, the stores in question are supplied and handed over to the *Etappen* authorities whose duty it is to convey them to the *Etappen Hauptort*. On the proper

intimation being given to the troops by the Officer commanding the Artillery, the stores in question would then be fetched by the troops themselves concerned, small arms being always as a rule conveyed at the same time as guns, etc.

It may as well be observed that such a thing as the supply of small arms is very rarely required by troops in the field, the number of men becoming non-effective generally exceeding the number of small arms rendered unfit for use. Repairs again, unless on a large scale, are made good by the regimental armourers.

Demands for *ammunition* are made directly to the Officer commanding the Artillery of the Army Corps. To meet these, the latter has in the first place, the *Army Corps Ammunition Columns*. These are filled up when necessary, from the columns of the *Field Ammunition Parks* by order of the General commanding the Artillery of the Army. The Field Ammunition Parks again, are completed from the *Chief Ammunition Depôts* in charge of the Inspector-General of Communications and Railways, and the latter are finally kept supplied by the General War Department.

By using the above system of supply, *echeloned*, so to speak, along the lines of communication, the different formations used to provide and convey supplies of ammunition may be classed according to their degree of mobility, and a constant supply moreover better ensured from *echelon to echelon*. The ammunition columns belonging to, and forming part of, a mobilised Army Corps, are organised so as to be always able to follow the movements of the latter, and they are consequently at times more or less exposed to danger and annoyance from small parties of the enemy, when separated for any time from their Army Corps—as for instance when journeying to and from the columns of the Field Ammunition Parks. The latter, however, being closely connected with the *Etappen* system as it advances, are protected at the same time as the lines of communication. As a rule, they are conveyed by rail, but provision is made for a certain number of horsed waggons, so that they can, if draught horses are to be obtained, gradually take to the roads. If sufficient teams can be requisitioned, the whole columns could indeed in time, take to

the roads, as the ammunition is by regulation packed in ammunition waggons.

The *Chief Ammunition Depôts* are situated far in rear in some perfectly secure position, and as a rule, are not changed when once established. From these, ammunition packed in boxes is forwarded as required by rail to the places where the columns of the Field Ammunition Parks are halted, or as the case may be, to some point whence it can be fetched by the empty waggons of these columns.

Finally ammunition must be unceasingly made up at home in the *Artillery Depôts*, and from these the Chief Ammunition Depôts kept constantly supplied as fast as they are exhausted.

d. SUPPLY OF CLOTHING, ACCOUTREMENTS, AND FIELD EQUIPMENT.

As regards the loss and wear and tear of articles of *clothing* and *accoutrements* in the field, the observation made when dealing with the question of the expenditure of small arms, may be said to apply to a certain extent in this case, inasmuch as the loss in men is greater than that in articles of *clothing* and *accoutrements*. In the matter of clothing, however, there is a certain difficulty in meeting the wants of troops in the field by supplying one man with what belongs to another, especially as regards *boots*, which can rarely be made interchangeable; and again, from the fact that whereas a sick or wounded soldier no longer requires his arms, he must be allowed to retain his clothing.

The supply of articles of clothing to troops in the field is consequently limited as far as the troops themselves are concerned, to what is carried in reserve by the regimental transport, and this can be only very rarely and inadequately supplemented by the requisition of boots, etc., found in the enemy's country, and answering the purpose. Again, in a certain time the clothing will be so completely worn out, that supplies of clothing *en masse* must be sent to replace it from home. The making up and despatch of clothing is work that falls to the lot of the dépôt troops at home representing those that have taken the field (*Ersatz-Truppentheile*), and the artificer detachments belonging

to these have to work incessantly to supply the wants of the army in this respect.

Troops in the field make a demand for such stores of clothing as they require, direct to their respective *depôt* (*Ersatz*) troops at home, and the latter complete and forward the order for transport to the front, through the officer taking the place at home of the General commanding the Army Corps. The transport of such stores to the *Etappen Hauptort* is a matter for the *Etappen* authorities, and from this point they are either fetched by the troops for whom they are intended, or else they are conveyed to the latter in charge of any reinforcements that may happen to be joining.

Accoutrements are similarly supplied when wanted, but these, when the effectives of an army begin to diminish, are soon, unlike articles of clothing, found to be in excess of what is required, and what is more, are much more easily stored.

Carriages (with the exception of ammunition and artillery carriages) and suchlike field equipment, if not to be procured in hostile territory by requisitioning, are supplied on demand, through the *depôt* troops at home representing those in the field, by the *Train Inspection*. Carriages for the *Engineers* and *bridge trains* are supplied, on demand made through the General commanding the Army Corps in the field, by the *General War Department*.

e. REINFORCEMENTS AND REMOUNTS.

On war being declared, the *depôts*, or troops that take the place at home of those that have left for the front (*Ersatz Truppen*), are at once embodied in such strength, and certain steps at the same time taken for ensuring their numbers being permanently maintained throughout the campaign, that the losses and gaps that may, according to all past experience, be expected in the ranks of the army in the field, are sufficiently provided for.

When certain troops have suffered any very severe losses, these may be made good by reinforcements from other as well as their own *depôt* troops at home. As a rule, reinforcements are forwarded to troops in the field by their own *depôt* troops at

home, on a proper demand being made from the former direct to the latter.

Reinforcements, both mounted and dismounted, are sent from home fully armed and equipped (including ammunition and *iron ration*), the necessary railway transport being provided by the Line Commandant at the *Etappen Anfangsort*, on a proper intimation being sent him by the officer acting as Corps Commander at home (*Stellvertretendes General Kommando*). The transport of reinforcements from this point to the *Etappen Hauptort*, and their further despatch to the troops they are to join, are then matters for the *Etappen* authorities.

Reinforcements of train soldiers for the various staffs and administrative departments, are obtained through the officers commanding the train battalion. Horses required by these, as well as by the infantry, rifles, and pioneers, are supplied by the horse dépôt of a mobilised Army Corps; and it may to a certain extent be used to supply any very pressing wants of the other arms.

The question of reinforcements and remounts for artillery after an engagement in which this arm has severely suffered, is one attended with very great difficulty. A battalion or a squadron even reduced to half its effective strength in bayonets or sabres, can always be still used as a battalion or a squadron. But a battery that has lost half its gunners and drivers and horses, cannot, until such losses have been made good, horse and fight its six guns. To replace casualties, men and horses can, in the first place, be transferred from other batteries that have not suffered to the same extent; and secondly, there are the ammunition columns from which drivers, and especially horses, can without any difficulty be taken. Every ammunition waggon belonging to these columns can very well spare two horses until reinforcements arrive, as it is quite possible, even without reckoning the spare horses of the column, to manage with four horses per waggon only for a time. These are all matters that would be left to be dealt with by the Officer commanding the Artillery of the Army Corps.

CHAPTER VIII.

SPECIAL RECONNAISSANCES.

WHEN dealing with the subject in Vol. I, attention was drawn to the fact that a *Special Reconnaissance* deals with some specific object to be reconnoitred under certain clearly defined conditions arising from the *actual* military situation at the time, if it be in real war, or a *supposed* one in the case of peace exercises (such as manoeuvres, General Staff tours, etc.).

It may hence be inferred that whereas everything having in any way reference to this situation, must be most carefully reconnoitred, all that does not concern the question must be as pointedly avoided. This rule is a very necessary one; for a reconnaissance being necessarily very closely made of everything that is of importance and which should therefore be examined and reported on (or as the case may be, the written report made on a reconnaissance necessarily going into detail on such points according to their importance), time would often be wanting to complete the reconnaissance itself, as well as in many cases to prepare or even read the report on one.

A sketch, either as a means of supplementing or illustrating a map, is very often a most valuable addition to a report, and may in some cases even act in itself as a report. When time is short, a verbal report must sometimes take the place of a written one; under such circumstances, a sketch cannot of course be expected; but even in this case it is very advisable to make corrections and additions on the map actually used when making the reconnaissance, and further explain these by notes made on the spot and carried in the sabretache. This plan has the advantage of showing at once, whilst making the reconnaissance, whether everything of importance is duly observed, and further, by causing

to be noted on the spot the impression made at the time, of the various things observed, acts as a certain check on the memory.

The officer making the reconnaissance must in the first place thoroughly understand the object of his business, and be perfectly informed of the military situation at the time. He must not only collect information on such subjects as have been indicated to him, but must find out all that his judgment tells him is desirable. His report will in most cases decide his General how to act. It is therefore of far more importance to ascertain the most advantageous position, point, etc., than to describe, however perfectly and minutely, others offering minor advantages.

The following, unlike what was said when dealing with the subject in Vol. I, Chapter VII, will consequently be found to contain considerable reference to tactical and strategical considerations, so far as these concern special reconnaissances.

The General Staff officer seldom makes a reconnaissance in war, alone. He is generally accompanied by a small detachment of cavalry to protect him against small parties of the enemy, drive in the enemy's vedettes, rapidly bring him information, etc., etc. In addition to an escort of this description, it is often advisable, as several pairs of eyes are better than one, to give him the assistance of one or two well mounted officers who have previously been thoroughly made acquainted with the object of the reconnaissance. By then dividing the ground to be examined among the party, a considerable saving may be effected in the time available for gaining the information desired; and again, especially in a thick or intersected country, a better and more accurate idea can be obtained of the circumstances connected with some given point to be reconnoitred, when it can be simultaneously observed from different directions. It is the special duty of the General Staff officer on such occasions to see that his assistants are properly informed.

When any special technical knowledge is necessary, it is very desirable to have the assistance of Artillery, but more often, Engineer officers. In the attack and defence of fortresses, their co-operation is of course of the highest importance; but even during active operations in the field, circumstances often arise

in which, though the General Staff officer may have a sufficient training in the subject to prevent his making any very serious mistakes, it is highly necessary to have the question technically examined by officers of the special arms.

As nothing must be neglected in war to ensure success in everything we undertake, it would be exceedingly foolish to dispense with the assistance of officers specially trained in certain technical subjects; in addition to which, it should not be forgotten that to call upon officers of these branches of the service to take part in reconnaissances, is only affording them the greatest pleasure.

In a case of this description, the object in view is generally of such importance that it is desirable to entrust the reconnaissance to the management of a General Staff officer of high rank and great experience. The officers belonging to the special arms accompanying the reconnaissance should, under these circumstances, be chosen so that they are junior in rank to the General Staff officer, thus giving the latter sole direction and charge of the business; otherwise technical details might quite possibly be allowed to carry undue weight in the matter.

α. RIVERS AND THE PASSAGE OF RIVERS.

There are two points to be mainly considered under this heading; put in the form of questions, these are—

1. Are we to cross the river ourselves, and is the undertaking to take place in an advance or retreat?
2. Are we expecting the enemy to cross the river and take the offensive?

1. *Passage of a River when acting on the Offensive.*

The point to be chosen is in this case a *tactical* question, if any resistance on the part of the enemy be contemplated. A well-marked re-entering bend of the river, high banks on our side overlooking and commanding the further side, secure means of approaching and holding positions on this side, *points d'appui* on the opposite shore where bridge heads can be established to cover the troops that first cross, etc., etc., are all questions of importance, and would have to be considered under this heading. From a *technical* point of view there are other con-

siderations depending on the breadth, depth, nature of banks, stream, bottom, and such like properties of the river; under this heading would be the question of a sufficient military bridge train, or the possibility of supplementing such *matériel*, if deficient, by turning to account such means as might be found on the spot or in the neighbourhood. These are all circumstances that have to be considered under the supposition that the military situation necessitates the river being crossed within a certain section of its course—a question that must depend on *strategical* considerations remaining for a time fixed according to the general situation of affairs at the particular moment of the campaign, and the general topographical features of the country. Within the limits thus imposed, the conditions fulfilling *tactical* and *technical* requirements must be ascertained by a reconnaissance.

If these requirements be perfectly clear in character, the conditions to be fulfilled by the point chosen for crossing are of themselves clear enough, as well as is indeed a certain adaptation of such conditions one to the other; for a case in which *all* the necessary conditions were equally well satisfied would be a very rare occurrence indeed.

If a suitable point for crossing a river is to be sought for in an unknown country, the most natural way of proceeding is to examine the river at places where traffic is carried on across it either by fixed or floating bridges, flying bridges, or ferries. There is always, at any rate, one favourable circumstance to be found at such places, viz. roads, etc., leading to the bank on either side, and in many cases other conditions as well of a technical character. In a tactical point of view such places might, however, be utterly unsuitable. If, then, the place where there is a bridge, ferry, etc., be objectionable for this reason, some point that is tactically suitable must be sought for as near this place as possible. The object in doing this is to secure, as far as possible, good communications to and from the point of crossing, and avoid leaving the roads and marching across country. In any case the question of being *always able to advance or retire* over the river, is one that must never be lost sight of, and the fact that approaches to a river are sometimes

rapidly rendered impracticable from a heavy fall of rain or a change of weather, must not be forgotten.

Conditions that are in themselves tactically unfavourable, *may* sometimes be compensated for by skilful arrangements, as well as by a superiority of fire. If the country situated near the point of crossing be impassable for any distance, either by reason of its being rocky, marshy, etc., and can only be crossed by regular approaches through it requiring much time to make, the chances of success in effecting a passage of the river, in the face of an *enterprising* enemy, would be small indeed, as he would be given time to concentrate all his available forces at the point threatened.

The above considerations lead us at once to the question of the importance of a river as an obstacle covering the enemy's front. To cross a river by throwing a bridge under fire is certainly one of the most desperate undertakings that a General can be called upon to execute. The difficulties placed in the way of crossing, either by the enemy or by nature, may indeed be insurmountable. The slightest *contretemps* may suffice to defeat the undertaking, even if we suppose the bridge to have been thrown without any check, and before the enemy had time to bring any considerable force to bear on the point of crossing. For instance, to attempt and force the passage of a river, when the opposite bank is not completely commanded and swept by the fire from this side, and the enemy is assembled for battle, is almost a matter of impossibility. Consequently, when there is reason to believe that strong forces of the enemy will be *rapidly* assembled to resist the passage of a river at any given point, some other point must be chosen and the river crossed there, before the enemy has time to discover and resist the attempt.

The difficulty of reconnoitring a river is, in nearly every case, aggravated by the fact that the enemy's advanced posts prevent access to the opposite bank of the river. It is, then, far from easy to come to a correct conclusion on the possibility of firmly establishing, on the opposite bank, the first troops that are to cross, as well as to form any idea as to how, if the river be successfully crossed in force, operations are to be continued with the best prospect of success.

Information obtained from persons well acquainted with the country, a careful examination of all available maps, and a comparison of the same with the topography of the country in the neighbourhood so as to correctly ascertain how far they can be trusted, and finally an attempt to reconnoitre by night the bank held by the enemy, may all contribute towards arriving at some approximately correct conclusion.

The following points should always be made the subject of careful examination and report.

(a.) Places where bridges may be thrown and the river crossed, or which offer exceptional advantages for the undertaking. Reasons given for preferring any particular point or points.

(b.) Breadth, depth, and force of current, with special reference to any sudden increase in the volume of water or floods the river may be liable to.

(c.) Character of the banks and bed.

(d.) Any existing means of assisting the operation of bridging, such as boats, ferries, timber, ropes, anchors, etc. Proposals or projects that may be devised for re-establishing any arrangements for crossing that may have existed, but have been destroyed by the enemy.

(e.) Roads and communications leading to the bank of the river on either side. Places suitable for depôts.

(f.) Positions for artillery on this side, with the relative commands of the opposite sides of the valley, the breadth of the same, whether wooded, enclosed, cultivated, etc.

(g.) Whether the point chosen for bridging the river is likely to be exposed to the fire of the enemy's artillery.

(h.) Towns, villages, farms, etc., and character of the country on the opposite bank as favourable or otherwise to the first troops thrown across.

(i.) Fords; these are more likely to be of use if below the point chosen for bridging the river.

If a river *has to be crossed in a retreat*, existing bridges or such bridges as have been destroyed and repaired, need only be immediately considered as regards the retreat of the main body. The reconnaissance of such bridges—a matter which should on

no account be delayed—is, under such circumstances, of an essentially technical character and would be made chiefly with a view to ascertain whether the bridges were safe and calculated to support the necessary weight. If considered desirable, repairs should be undertaken without delay, and the bridges made of the requisite strength. The special report that would be made by an Engineer officer, as a rule, on the subject, would have reference to such questions only.

If the enemy is following closely, the rear guards would be chiefly concerned, and the latter might possibly have to retire over the river under the fire of the pursuers. Tactical considerations are now again mainly to be observed, and the same remarks may be said to generally apply now as in the case of an advance, circumstances that may be considered favourable in one case being equally so in the other. But in a retreat opportunities are often offered of improving any advantages the features of the country may offer, by hasty entrenchments and field fortification; these may either take the form of gun emplacements on the further bank, commanding and sweeping the ground on the opposite side over which the enemy must advance towards the river, or a *tête de pont* covering and protecting the bridge to the last moment.

A reconnaissance must give due weight to all such matters, but should the enemy pursue with vigour, it may be often impossible to prevent a certain amount of bridging material from falling into his hands.

Finally, there is the danger that a portion of the main body, if not the rear guard which is often obliged to maintain itself against the enemy longer than is desirable, may possibly be cut off by the enemy from the point of crossing. In a great many cases the enemy would do his utmost to accomplish this, and his movements would generally indicate from which side the pressure might be expected. If his design be foreseen and a bridge thrown at some other point, enabling the rear guard to retire with safety, the latter may continue to hold out and allow the enemy to complete his turning movement, calling him off from the point where the main body has crossed. But in choosing such points as these, care must be taken that there may be every prospect of

accomplishing the retreat with slight loss, and every chance of saving the bridging material. To ensure this, field fortification must be resorted to strengthen and add to such tactical advantages of a general character as are offered by the point in question.

The reconnaissances made with a view to the different points just referred to can, as a rule, be carried out without any particular difficulty, as the river, banks, etc., may be examined without fear of the enemy.

2. *When the Enemy is expected to cross the River.*

In making a reconnaissance in this case, it is well to put oneself in the position of the enemy, and, having selected the best points of crossing, see how the attempt may be best foiled. The report of the reconnaissance which should be treated as far as possible as a broad question, must in this case, be accompanied by proposals for the *observation* and *defence* of the line formed by the river.

The proper *observation* of a line of river requires above all things a good system of transmitting intelligence, and this again requires efficient outpost arrangements. Small detachments posted on the opposite bank must hold out as long as they are able, send all information they can get on what appears to be the line of advance of the enemy's main strength, and only retire across the river when hard pushed, and then at some point where the passage has been made secure. An efficient and well-organised system of acquiring information, next does all in its power to supplement and complete the reports made by the detachments that have been driven over the river. The plans of the enemy may often be revealed by the reconnaissance he has been observed to make of certain points.

The posts of observation stationed on this side of the river should be instructed not to interfere with or fire on officers' parties of the enemy reconnoitring on the opposite bank, unless these come very near and they are sure of their mark. It is far better to carefully watch the enemy's intentions than to momentarily interrupt his observations.

Means of rapidly sending information should be provided by the telegraph, and a system of mounted relays. At all

important points, or places where the enemy would be likely to attempt a passage or make a feint, intelligent officers should be posted who may be safely trusted with the discernment of feigned from real attempts.

The *defence* is materially assisted by removing or destroying everything that could be of use to the enemy in attempting a passage, such as boats, ferries, timber, etc. Whether it appears best to simply remove these to some safe place on this side of the river, or whether it appears more advisable to burn or utterly destroy them, is a question depending on the possibility or probability of our shortly assuming the offensive. Similar considerations must also decide whether railway and other bridges and fords are to be destroyed or defended intact. Preparations made for blowing up and destroying bridges, etc., should, when made beforehand, be constantly examined and ascertained to be effective. Finally, a judicious and skilful distribution of the forces available, so that they may be concentrated on the most probable points of passage in the shortest possible time, is, it is unnecessary to add, of the first and highest importance.

It is only by making the most careful reconnaissances, that sufficient information can be obtained on which all the above considerations and questions could, at any rate so far as local arrangements are necessary, be decided. Strategical considerations, or the extent and subdivision of the line of river to be observed and defended (and consequently examined and reconnoitred), are in this case, as in the case of a contemplated offensive movement across a river, matters depending on the general military situation. The line of river to be observed would be divided into sections or lengths, and assigned to different officers for separate examination and report.

As the intentions of the enemy cannot be accurately known, the reconnaissance on our side in this case must be far more extensive than on his, from the very fact that he has a definite object in view, and consequently has from the very first, a much less extensive field to contemplate. Our business being to negative his, we must take care to be far more fully informed. The difference between the offensive and the defensive is perhaps nowhere better shown or illustrated than in the case of the

attack and defence of a line of river. The latter, apparently affording the defenders a long and formidable line of defence, enables at the same time the assailant to suddenly mass his forces on a given point. Thus the great danger there is, when acting on the defensive, of too widely scattering an army, is in this case exceptionally critical. It may to a great extent be guarded against by efficient and careful reconnoitring; the look-out must be sharp and the observation correct, but the aim and object always kept in view must be to ascertain the intentions of the enemy.

b. ROADS.

The reconnaissance of roads is a duty constantly occurring to the General Staff officer.

During an advance, and when a close *touch* of the enemy is being maintained, the leading troops, generally cavalry, are rarely able to make a preparatory reconnaissance of the roads. Maps and information gathered from the inhabitants must on such occasions be relied on, and a more or less correct idea formed, as to how far a road is practicable or leads in the right direction. If the road taken is found to lead in the wrong direction, or becomes impracticable—the worst that could possibly occur—there would be no help for it, and we should have to retrace our steps. But such an occurrence might bring about the most serious consequences; a column of troops, for instance, on the punctual arrival of which at a given point, much depended, might be delayed, and the fate of an engagement thereby perhaps decided.

It is therefore very desirable, before assigning routes to forces of any size, to correctly ascertain whether, or to what extent, the roads they will have to march by are practicable and lead in the desired direction. Consequently, it is best to assign to large bodies of troops such roads only as are seen at once to be good from the map, or have previously been reconnoitred and found practicable, or are undoubtedly so from trustworthy evidence agreeing on the subject.

Roads that the enemy has just used in his retreat may be used without any further hesitation. If he could no longer con-

tinue to retire by such roads, there would be at least the probability of coming up with him and forcing him to fight under very great disadvantage. The safest way of being kept correctly informed during an advance of the state of the roads it is proposed to use, is to accustom the most advanced parties of cavalry to send in daily with their reports on the movements, etc. of the enemy, a short account of the practicability of the roads they have ridden over. This must be also done, but in a more complete way, by an advanced guard as regards the main body following it, and it is the duty of the General Staff officers attached to Cavalry Divisions, advanced guards, etc., to constantly give their attention to such important matters.

It may, however, under certain circumstances, quite possibly happen that a force in an advance is assigned a road that is either quite impassable or can only be used with the greatest difficulty. It does not necessarily follow, however, that the General Staff is to blame for such mistakes, as it cannot always personally reconnoitre all the roads of a country.

But in a retreat such an occurrence must never on any account occur unless, of course, a force has the misfortune to be driven by the superior strength of the enemy into impracticable country. To retire before an enemy by bad roads is to incur the additional risk of being outstripped by him on good roads and cut off.

Thus great circumspection in such matters is necessary when using a railway as an ordinary road. In a marshy or mountainous country, or in the passage of a large river, when the disadvantages of using a railroad are compensated for by the use of an additional line of march or the advantage of an extra bridge, a line of railway often practically forms a defile for very considerable distances from which there is no escape, which cannot be used by all arms, and which by an accident, such as the breaking of an axle, might for a time be completely blocked at some inconvenient place by a waggon left on the road and impossible to remove. Consequently, infantry without wheeled transport should alone be assigned a railway to be used as a road.

To think of retracing one's steps, on the road being found

impassable, when retiring and followed by the enemy, is of course, quite out of the question. The General Staff must, therefore, in this case, reconnoitre with the greatest care and attention; for it should be remembered there is no time in war when it is more important to preserve the greatest order and regularity in things great and small, than during a retreat. Any circumstance that can possibly affect an orderly retreat—and faulty orders for the march arising from insufficient knowledge of the roads and communications of the country, may certainly be classed as such—should be most carefully avoided.

High roads do not as a rule require to be reconnoitred when the maps of the country have been kept up to date and are to be implicitly trusted. In a retreat, the trains would use these roads and precede an army. If there were any obstacles on such roads that were not already known to exist, they would thus be ascertained, and opportunity would be given to either remove or avoid them, as the case might be.

The choice of roads to be used by the troops nearest the enemy, is a question of the highest importance. It is one constantly affected by the contingencies both of fighting and marching. What appears desirable from the latter point of view must often give way to considerations of a tactical nature. Flanking or side detachments must often be formed, and these must sometimes move by inferior roads; troops again may often be directed by roads solely with a view to prevent the possibility of the enemy seizing certain roads or points. But all such roads must enable marches to be regularly executed, and should therefore be previously reconnoitred.

The reconnaissance of a road in the present case should not be lost in laborious details. The character and degree of practicability as regards its being used by the different arms, must be given, drawing attention to the following points: breadth of the road where it is most contracted or narrow, subsoil, metalling, gradients, and bridges and such like defiles, if these cause the road to be still more contracted than at the narrowest parts. The country or ground on either side of the road is of special importance as regards the question of an engagement *i.e.*, how far it is favourable, or otherwise, to the deployment

of troops and the movements and action of the different arms, whether it offers good positions for rear guards or outposts, is favourable or otherwise to a retreat, facilitates surprises, etc., etc. All such matters must be given a thought by the General Staff officer as he rapidly rides along making the reconnaissance, and afterwards be reported on. Similarly, the bivouacking, housing, and subsistence of troops, must not be forgotten, and such matters as refer to these questions, mentioned.

The question of finding roads by which columns of troops can march (*Kolonnenwege*),* is one of special importance, as it really consists in knowing how to make the best use of country that can be crossed by troops (using in the first place, of course, existing roads) with a view to the combined movements of several columns.

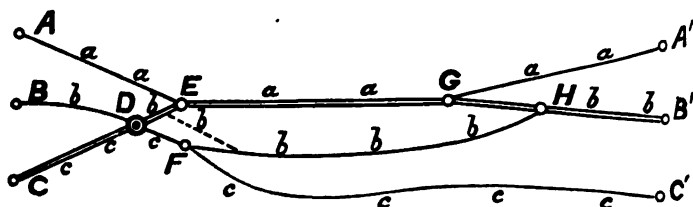
A column of troops moving from one point to another uses the best and shortest existing road of the country. Consequently, it is only necessary to seek and assign a particular *Kolonnenweg* to a column of troops when, as it rarely happens, in the absence of a good map of the country or other reliable information, there appears to be some doubt as to the right direction to be followed. But whenever several columns of troops are marching at the same time on the same point, each must be assigned a separate road. This often leads to a somewhat complicated combination in the use of the existing roads of the country, or even to seeking for new lines of march over ground lying off the roads, by using communications not usually intended or employed for such purposes, such as railroads, etc. Such a proceeding is naturally always to be avoided so long as a sufficient number of roads actually exist and can be turned to account; practically, such improvised communications have only to be sought for when large masses are being concentrated or deployed into position before a battle. On such occasions there are rarely too many roads available; but the more there are of them, provided there be the proper distances between them, the more rapid and effectual will the deployment be. At times it may be necessary to quit the road and march for a

* A "*Kolonnenweg*," though it may sometimes be a road or track, more often means an improvised passage or line of march across country.

certain distance across country, in order that the column may escape the enemy's observation, or in some cases avoid being exposed to fire.

In a combined march of several columns, it may often be impossible to allow a column to continue its march entirely by the road originally assigned it; it may be necessary, for instance, for a column to change from one road to another, or even, under certain circumstances, to cross over from one road to another by making a short march across country, in order to arrange or maintain the combined movement on as many parallel roads as possible.

The following sketch puts the matter in a somewhat clearer light:—



If a force is to advance from the line A, B, C, to the line A', B', C', in three columns the heads of which are to be kept as nearly as possible in alignment, the column at C, if it were assigned the highway C, D, E, G, H, B', to march by, would unavoidably meet and cross the columns marching from A and B.

The column *a*, starting from A, must, therefore, march by E and G, to reach A'; the column *c*, starting from C, must reach C' by D and F; and, finally, the column *b*, marching by D and E, must before reaching the latter point, turn aside, and by a previously selected *Kolonnenweg* (shown by a dotted line in the sketch), reach the road F, H, and attain the point B' by H. It is of course taken for granted that the columns *b* and *c* can pass through the town D by two distinct roads from B to E, and from C to F. If this be impossible, one of the columns must avoid or pass round the town by using a previously ascertained *Kolonnenweg*, so as to let the other pass through it.

If the different roads are not all practicable for all arms, the composition of the columns must temporarily be changed. Thus, for instance, if in the present case, the highway C, D, E, G, H, B, is the only practicable road for the mass of the artillery, the latter would have to march from C to D with column *c*, from E to G with column *a*, and from H to B' with column *b*. It may as well be observed that artillery and trains should never be called upon to march across country unless in absolute cases of necessity.

Kolonnenwege that do not follow the roads of a country should be distinctly marked. When there is sufficient time, or when, as in the case of the investment or siege of a fortress, the *Kolonnenweg* is likely to be used for a considerable period, it should be marked with wisps of straw fastened to trees, poles, etc., and have signposts at each end. If there be no time for such arrangements, the General Staff Officer fixing the *Kolonnenweg* would mark it out by posting mounted orderlies, and he should, therefore, when reconnoitring for such purposes, be accompanied by a sufficient number of these. On being posted, they would at once dismount, and should be given verbal or short written instructions on the object for which they are intended.

If the *Kolonnenweg* is to be used by troops at night, the orderlies should be posted closer together, and if possible, provided with lanterns or torches. It is also always very desirable to provide guides who have been able to make themselves acquainted with the way by day.

In selecting *Kolonnenwege* for troops to immediately deploy or move into position for battle by, the adjutants of the different officers commanding columns should, whenever the latter have not been personally sufficiently informed by the General in command on the direction to be taken, accompany the General Staff officer to the front, see for themselves the line of march to be taken by their respective corps, and then act as guides to the latter. Under such circumstances, the marking out on the ground of the different *Kolonnenwege* would be hardly necessary.

C. RAILWAYS.

1. RECONNAISSANCE OF LINES TO BE USED.

In war it would rarely be found that a report on a line of railway gave all the information desired, from the fact that the circumstances of the case would only be reported as actually found. Consequently, it is essential that with the report, should be considered such means as are available for improving, supplementing, and extending the facilities for traffic, together with the sources whence such assistance may be procured.

In the first place, without permanent way, crossings, engines, tenders, rolling stock, water supply, coals, and railway servants for stations and trains, anything like regular and uninterrupted traffic is impossible.

How the traffic of a given line of railway is variously affected by the character of the permanent way, station accommodation, quality and quantity of rolling stock, staff of railway officials and servants, provision for telegraphic communication, etc., etc., is a question that has already been pointed out and dealt with in detail in Vol. I.

That one or more than one essential condition for working a line of railway may be either entirely or partially wanting is, however, almost invariably to be expected, when a line of railway has to be worked which has recently either been in possession of an enemy, or even within his reach.

The matter of enabling traffic to be resumed, and of carrying it on when resumed, has, under these circumstances, to be undertaken by the military railway authorities and the troops. The General Staff officer accompanying the first body of troops that seizes or passes any line of railway, can be of great use to the former and consequently render a very valuable service, if he ascertains to what extent facilities and means are to be found on the spot for re-establishing traffic, and thus enables the report sent in to the proper military authority on the seizure or possession of the line, to be very materially added to.

Opportunity may be given, and it may seem desirable with a view to enable traffic to be resumed, to cause certain traffic

arrangements and other matters connected with the traffic, to be at once taken military possession of and guarded.

The special information of a more technical character which it is necessary to obtain before re-establishing or extending the traffic on a line of railway, is of course a matter for officers and employés technically trained and skilled in the subject. But the General Staff officer whose duty it might be to take a part, as the representative of the military interests concerned, the higher military authorities, etc., in such a question, has in nearly every case to bear in mind that, from his point of view to at once open traffic, however restricted and primitive in character it may be, is preferable to postponing it until such preparations have been made as might enable it to be undertaken on a better scale; that traffic can be afterwards improved by further arrangements; and that a loop line, for instance, that could be made practicable in from 6 to 8 days' time for trains of from 10 to 20 axles, running at the rate of, say, 4 kilometres ($2\frac{1}{2}$ miles) an hour, should not be neglected because it is expected that a tunnel on the main or direct line will be cleared and opened for traffic in perhaps double that time.

If the immense importance of having as much railway communication as possible in rear of an advancing army, to forward its wants and send back its encumbrances of every conceivable description by, be borne in mind, no help, however small, should be despised; the usual rules of technical and engineering perfection must be departed from, and the plan that enables the difficulty to be quickest overcome, adopted.

2. RECONNAISSANCE OF LINES TO BE INTERRUPTED.

To destroy a line of railway so as to stop the traffic, is to use a weapon that cuts both ways. Even in the case of a line of railway that is to be abandoned to the enemy and that he could actually make use of, it should not be permanently destroyed if there is any chance of our being soon likely to want it. As a rule, therefore, a line of railway should only be rendered useless to the enemy by causing temporary obstructions to the traffic, and would only be permanently destroyed in a way to render

traffic impossible for a very long time, on a distinct order being given to do so by the higher military authorities.

In the former case any troops may have to undertake the work, but in the latter, the operation is one usually performed by the engineers or railway corps, and the detailed reconnaissance of the line with proposals for its destruction, are then matters for the officers of these branches of the service.

Under the heading of *temporary or partial demolitions*, may be classed the destruction of rolling stock and permanent way. If the latter be ripped up and destroyed, it may appear superfluous to destroy the former, but to destroy the rolling stock only would hardly answer the purpose.

Rolling stock may be rendered unserviceable for a time by removing or smashing up the wheel boxes, wheels, etc.; in the case of engines, it is sufficient to remove the valves and gearing.

To burst the boilers, burn or blow up tenders and other rolling stock, is to utterly destroy beyond all repair.

Permanent way is best destroyed in places on the line where there are curves, and the outside rails should then as a matter of choice be ripped up; at stations, it should be destroyed at the points. If it be intended that the line is to be rendered useless for any considerable time, several lengths of rail should be removed together, and the line destroyed in several distinct places.

A line is rendered useless for a time by simply removing the fastenings of the rails to the sleepers, and unscrewing and removing the fish-plates on the outside rails.

At stations, demolitions are better effected with explosives, especially dynamite, than with crowbars, cold chisels, and sledge hammers. Cavalry regiments are provided with all the appliances for minor work of destruction of this description.

The *permanent destruction* of a line of railway is always best effected by blowing up some important and difficult work of engineering. If no such work exists, a railway may be rendered useless for a considerable time, it is true, by totally and utterly destroying the permanent way with all its appliances at stations (such as points, crossings, turntables, tanks, wells, etc.), ripping up and twisting rails, removing or burning sleepers, and removing or destroying chairs, bolts, fish-plates, etc., for con-

siderable distances, and in a great many places, on the line; still, the line could not be said to be thus absolutely destroyed, and it would be merely a question of time and means to repair the damage done, even though traffic at first might be necessarily very crippled.

The destruction of station buildings is no very serious drawback to traffic; the removal or destruction of telegraphs and signals is a far worse injury to a line of railway.

When preparing mines for effectually blowing up (or in) high embankments, bridges, viaducts, the steep sides of deep cuttings, high cliffs above or below the line, etc., the resistance to explosion must be carefully ascertained and calculated, so that the effect produced may be neither too much nor too little, but exactly the result required. To blow in a tunnel driven in compact rock produces but little effect, but in loose earth, wet clay, etc., the line may be most effectually blocked, and it may take a very long time, in some cases even years, to repair the damage done and reopen traffic.

When a line of railway is to be *destroyed as completely as possible*, it is not merely necessary in selecting the work to be destroyed, to consider how long it will take to temporarily or permanently repair it; it is equally desirable to ascertain whether the point where the line is to be thus destroyed can be avoided and *turned* by using other lines, and if so, how long such a turning movement would take. The officer sent to reconnoitre must, with the help of such technical assistance as accompany him (officers or others belonging to the railway corps), carefully consider such a contingency, and if he thinks proper, select a work for destruction which if destroyed, might offer greater facilities for repair, but which is situated on a section of the line that cannot be turned, instead of one which, though far more difficult to repair if destroyed, is so situated that it could be more easily turned.

d. TOWNS, VILLAGES, FARMS, ETC.

The reconnaissance of towns, villages, etc., is generally made with a view to simply ascertain their *defensibility*, and must consequently include the ground in their vicinity.

Most towns and villages, but especially those of any size or importance, are situated on comparatively low-lying ground and near the watercourses of valleys, from the fact that the existence of a supply of water has led to their formation. Towns and villages thus situated often form defiles over the stream or river on which they are built, and though, as it often happens, they may be commanded by the neighbouring heights, they still possess a certain importance for purely local defence. This mainly depends on the following points:

1. How surrounded or enclosed; whether the outskirts would offer obstacles to the movement of troops, and thus confine the attack to certain points such as the entrances or exits, or would afford the defenders cover both against the enemy's observation and fire.

2. The ground in the immediate neighbourhood; whether it is open and would offer a free field of fire to the defenders, or is enclosed, etc., and would afford the assailants cover.

3. The possibility of offering a protracted inner defence by having several lines of defence, buildings, etc., acting as *réduits*; the danger of the place being set on fire; the existence of convenient open spaces where reserves could be posted; and facilities for interior communication.

4. Opportunities for posting and moving strong reserves in covered positions behind or on either side of the place for a counter attack on the enemy.

The rôle again that artillery could play both in the attack or defence; the strength of the force required for the defence of the place itself, together with how it should be held and how the defence should be conducted, especially if the troops available for the defence appear inadequate, seeing its size and peculiar character; and finally, the measures to be adopted to strengthen and fortify the place and the ground in its vicinity, are all questions deserving especial attention.

If the reconnaissance be made merely with a view to finding *quarters* in the place, then the number, size, and character of the houses and buildings, stables, barns, sheds, etc., are matters to be considered. Large villages or towns should be portioned off in districts; this facilitates the supervision of the work.

A somewhat similar proceeding is necessary when *requisitioning subsistence, etc.*, in a place, but whereas the accommodation afforded by a place remains the same, unless houses and buildings are destroyed in large numbers by fire or such like accidents, the quantities of subsistence, cloth, leather, etc., that may be expected to be found in a town or village, may vary very much, and may be said to mainly depend on whether the place has been already recently subjected to military requisition for such articles. In this case, instead of a reconnaissance made by a General Staff Officer, a minute search conducted by the Intendantur, and in certain circumstances by the troops themselves, would therefore have to be undertaken.

e. WOODS.

We cannot do better than refer the reader to what was said under this heading in Vol. I, and only draw attention to the importance of the roads leading through woods. The reconnaissance of such roads, owing to the view being obscured, is a matter attended with very great difficulty, unless the roads in question are in the nature of regular *vistas*.

f. IMPASSABLE GROUND.

Although a tract of absolutely impassable ground has in reality but a negative importance, a reconnaissance with a view to ascertain whether or to what extent it is actually impassable, is very important. Every circumstance that acts as an obstacle to the movement of troops must then be considered. Ground is rarely absolutely impassable ; consequently, the point to be arrived at is—how far the different arms are either entirely prevented from moving on it, or restricted to certain formations while doing so.

Ground that has to be reconnoitred and that is supposed to be impassable by reason of the character of its slopes, its subsoil, or the covering of the latter, may be classed as—mountain land, marshy land, and wooded land.

We know in the first place that, quite independently of any artificially made roads and communications, there are always

certain places in mountainous country where troops of all arms can perfectly well deploy into line of battle; that extensive marshy and generally impassable tracts of country can be passed in certain places where the ground is slightly higher (though these places may be few and far between), by infantry in extended, and even sometimes in closed, formation; and that all arms are more or less free to move in thinly-planted woods.

The object then that a General Staff officer would have in reconnoitring such country, would be to ascertain how far or to what extent the above conditions existed in each particular case. He must not, as a rule, trouble himself about the possibility of single men being able to pass by unused and difficult footpaths in a mountainous or marshy district, or creep through the thickest coverts. To ascertain whether such a contingency should be provided for, is more the business of outposts or such-like detachments; but the posting of these and the positions selected for them, often depend on the report of the General Staff officer making the reconnaissance.

g. DEFILES AND PASSES.

Places where passable ground is contracted, usually called defiles or passes, have a military importance from the fact that troops in the act of passing such defiles, can make but very little use of their fighting power. Thus a small fraction of a force may find itself exposed for a longer or shorter time to a superior force of the enemy, if it is separated from the remainder of the force by a difficult or long defile.

The object of a reconnaissance would then be to ascertain the difficulties or obstacles presented by a defile, and these depend on the length, breadth, and practicability of the defile itself, as well as on the extent to which the ground on either side of the defile is practicable or otherwise, and again, on the peculiar character and features of the country near the defile as facilitating or hampering the attack or defence, or a retreat when pressed by the enemy.

The *length* of a defile must be considered both as regards the time required for the different arms to pass it, as well as whether it is exposed to fire from one end to the other. The

longer a defile is, the easier is it to defend, the chief reason for this being that the enemy when passing it, is for a longer time almost helplessly exposed to the defender's fire. And if a defile be sufficiently long to prevent the assailants from their end bringing an effective fire to bear on the defenders at the other, it may, if held by a sufficiently strong and well-posted force, be practically impossible to force.

The *breadth* is important in precisely the opposite sense of the length. The broader a defile is, the wider will be the front, and consequently the more powerfully can the attack be developed. Again, a force being able in a broad defile to pass on a wide front with a diminished depth, it can more rapidly clear the defile when the defenders have been forced from it by the leading troops.

As regards *practicability*, a defile may be viewed as a "road," and its character in this respect judged from the nature of the subsoil, gradients, etc., etc.

What really gives a defile its importance, is, however, the character of the ground or country on either side as regards its *degree of practicability*. Troops attempting to force a defile by a direct attack are, when once engaged in it, in very nearly a helpless condition by reason of their being unable to develop any fire. The latter, to produce any appreciable effect, must be flanking or reverse in its character, unless the ground enables infantry to be deployed and extended in loose formation—an operation which though attended with considerable fatigue and difficulty, is nevertheless generally more or less practicable.

As regards the *character and features* of the ground, the first point to be considered is the presence or absence of artillery positions on both the attacking and defending side. Any very marked superiority in this respect on either side at once settles the value of the defile, looked upon as a defensive position. Next to be considered are, any existing points that may be used as *points d'appui* for local defence; places whence, if acting on the defensive, an extensive view can be obtained and whence all the enemy's movements can be clearly discerned, or if acting offensively, points where troops may be massed, or the defile approached unperceived by the defenders; and finally,

positions that if held, would at once close the defile with ease, or places where it might be artificially blocked (*Sperrpunkte*).

A very long defile, such as for instance a mountain pass, generally consists of several separate and distinct defiles, or at any rate is of this description, whenever the ground on one or both sides of the defile is such as to enable troops to every now and then deploy. As a general rule, this would enable a force to take up a series of defensive positions one behind the other, commanding the pass. The chief danger to be avoided in such circumstances is the possibility of being suddenly turned by some unobserved or unknown road or path, and taken in flank, or even perhaps in rear.

h. POSITIONS.

The military meaning of the word "position" includes a supposition that an engagement is either contemplated or shortly expected.* As the nature or character of the fighting expected may vary very considerably both as regards object and other attendant circumstances, military positions may be classed under various different heads. The most important may be classed as—"positions of readiness" (*Bereitschaftsstellung*), "positions for fighting" (*Gefechtsstellung*) (distinguished as positions for battle or for advanced and rear guards), and positions for outposts (*Vorpostenstellung*). According as the position is intended for any of these different purposes, a reconnaissance of it must therefore be made from various points of view.

1. POSITIONS OF READINESS.

"Positions of readiness" are taken up when the positions and movements of the enemy are not as yet sufficiently well-known, and our line of action must depend on his, and we wish to reserve to ourselves the power of being able to act in one or the other way, when all doubts on the military situation have been cleared up. To avoid any unnecessary loss of time, it is desirable that the different bodies of troops or fractions of a force should occupy, and be ready to move from, points where roads

* The position known as a "Rendezvous position" (*Rendezvousstellung*) is not a *position* at all in this sense, but merely a *formation*.

meet, and lead in the required direction ; in a great many cases it is advisable to order the men to cook their dinners, as then the movement once resumed, when the further plan of action is decided on, can be all the better executed. It very often happens that the question of whether a movement should be commenced in a given direction, is intimately connected with that of whether a certain position for battle is to be occupied or not. The position of readiness must fulfil both these conditions. It must, therefore, be so chosen as regards the network of roads covering the country, together with any *Kolonnewege* that may happen to have been laid out, as to enable the various columns of troops to march off with ease in either direction contemplated, without crossing or interfering with each other, or as the case may be, to at once move into the position for battle previously determined on, without fear of being anticipated or interfered with by the enemy. Thus, from the fact that there must always be some lasting connection between the ideas which prompt a Commander-in-chief of an army from day to day during a campaign, to take this or that step, the "position of readiness" taken up on one day must coincide or agree with the position the forces have been ordered to move into on the preceding day, for in ordering troops to march on certain points on one day, the chances of what may occur on the morrow, must be foreseen and provided for. In such a case the troops would either be ordered to keep themselves in readiness to act in their bivouacks, or to assemble from their cantonments on certain previously determined "places of alarm."

In war, however, it often happens that plans hitherto followed, and arrangements already made, have to be suddenly given up, owing to unexpected changes rapidly taking place in the military situation. And it is precisely in such cases that a correct appreciation of the state of affairs and a knowledge of the necessary steps to be taken, cannot be arrived at before a reconnaissance has been made of the enemy—an operation entailing of course, a certain loss of time. In the meanwhile, the troops would be held in readiness to move, a circumstance which, however, as has been already mentioned, does not prevent them from cooking their dinners and feeding their horses.

The points chosen for halts of this nature should be selected so that the troops may assemble on them unobserved, and not run the risk of being disturbed by the enemy. There should be firewood and drinking-water in the vicinity. It is, moreover, desirable that the rations carried by man and horse should be supplemented by such food and forage as can be requisitioned in the neighbouring farms and villages.

2. POSITIONS FOR FIGHTING.

These may be classed as positions for battle, or for advanced and rear guards. The conditions that are desirable may be broadly stated as—firstly, the greatest possible effect to our fire, and secondly, protection to ourselves. The latter condition must, however, never be allowed to be prejudicial to the former.

a. Positions for Battle.

A position for battle is one in which a battle is to be accepted and fought out until decided. An army taking up such a position with a view to being sought out and attacked by the enemy, voluntarily places itself thereby, for the time, on the defensive. On the intention of remaining so for a longer or shorter period, would, under such circumstances, depend the question of selecting a position of an exceptionally strong character. Such a proceeding is only justifiable in very exceptional cases, for great defensive strength in a position, is only usually arrived at by the existence in front, of a very serious natural obstacle preventing the defenders more or less from assuming the offensive after repelling the enemy's attack, and a position that is difficult or formidable to approach, naturally induces the assailant to attack it by a turning movement.

It would be wrong, in considering the latter point, to adhere to a theory advanced by some, that an enemy *must* attack a position of this kind, especially when it is on the flank of his line of operations, and *dare not* pass and avoid it. On the contrary, we must make up our minds that, should the enemy ignore this theory of "must" and "dare not," he must himself be attacked from this position, and in such a manner that he

may be taken at a disadvantage by the defenders now acting offensively and profiting by the positions they occupy. But if the assailants, attacked by the defenders from their position whilst in the act of executing a turning movement, are able to deploy their forces to the flank thus threatened by the offensive of the latter, faster than these can bring their forces over the obstacle situated in front of their position and constituting its natural strength, the defenders, now turned assailants, may possibly find themselves in a very critical position, especially if we suppose, as is generally the case, the side acting offensively to be either numerically stronger, or made of better fighting material. Consequently a position to be a good one in this case, must enable the defenders to rapidly assume the offensive in force, and there must therefore be no natural obstacle of any kind in front.

A position that owes its strength to a *natural obstacle situated in front*, is quite out of the question as a position for battle. Strong *points d'appui to secure the flanks*, and a *free field for fire* in front, together with an extensive and clear view of the country over which the enemy may chiefly be expected to make his main advance, and finally a sufficient *depth*, and *covered positions* where troops of all arms may be securely posted, are very essential conditions. There must be no hindrance or obstacle of any kind to *at once assuming the offensive*. For to assume the offensive directly the state of affairs enables it to be done, must always be the aim of any General placing his forces in a position for battle, with the object of arriving at the greatest military results, but temporarily constrained to act in a defensive attitude for sufficiently valid reasons.

An *obstacle along the front* of a position is therefore anything but desirable in modern warfare. But on the other hand, seeing the power of modern firearms, the importance of a "*free field for fire*" in front of a covered position, has immensely increased; and the best is formed by a gentle and even slope falling towards the enemy. But such ground, and indeed the view over the country beyond, should not be judged from the position only (or the side of the defender), but from the side of the assailant as well. It takes, indeed, a very marked superiority in artillery, as

well as a very gallant and numerically stronger infantry, to force an enemy from a position by a frontal attack, when he, from more or less covered positions, can effectually sweep the ground in front with artillery and infantry fire. The frontal attack must be rather withheld until it can be combined with an attack on one of the enemy's flanks. And thus the importance of having the *flanks of a position secure*, is at once seen. This may be brought about by either having obstacles or impassable ground on the flanks, or strong positions for artillery commanding the ground to a great distance, so that any turning movement attempted by the enemy must entail a long detour, and thus cause him to divide his forces and give the defender a favourable opportunity for a counter attack. The attack on a flank may at times be sufficiently provided for by meeting it with a counter attack by troops held in reserve for the purpose, when the latter would fight under some very marked advantage. Ground on the flanks, that is wooded, or that cannot be clearly commanded, renders a position otherwise excellent, untenable or useless, when such ground can be passed by the enemy in force.

The limit to the *length of the position* that may be occupied by a *given force*, requires special notice. Formerly the front that a force could occupy was fixed as 10 men *per pace as a maximum*. Though the front of a position is certainly now stronger in itself, owing to the improvements that have taken place in firearms, we shall still be on the right side in not deviating much from the old rule, if we remember that the tendency now-a-days of the assailant to turn a flank, renders a deep formation desirable on the part of the defender, and practically entails a prolongation of or alteration in the line originally taken up by the latter, during the engagement. Eight men per metre may be said to be sufficient.

The strength of a position is considerably increased by strong *points d'appui for local defence*, situated in front or on either flank, such as small but strongly built villages or châteaux, patches of wood, and indeed all objects which, strong in themselves for defence, require to be held by but few men, but necessitate an attack in force on the part of the enemy, and consequently cause him to waste much of his strength. Where

there are no such *points d'appui*, they may, to a certain extent, be artificially created by *works of defence*, such as shelter trenches, gun emplacements, etc., thus affording the defenders additional cover. Works of this kind should be placed not only in front, but on the flanks of a position.

The long range of modern fire arms requires a position to have *great depth*, in order that the reserves may be posted beyond the reach of the enemy's projectiles. Besides, by being placed further in rear, they are all the better able to frustrate any out-flanking attack of the enemy, by taking such a movement itself in flank.

Finally the question of a *retreat* must be considered. In this case it is first of all desirable that the ground in rear of the position offers no impediments to the movement of troops, and is in fact as passable as possible. Impassable ground in rear of a position, or indeed an obstacle which can only be crossed at certain points (such as a river impassable except at bridges or fords), renders the position at once a bad one. But a wood intersected with many roads and paths which have been previously reconnoitred, is decidedly advantageous, as it quickly screens the retiring force from both the view and fire of the pursuers, and at the same time checks immediate pursuit. With a view to accomplish the latter object, it is always desirable to have a second position ready, where the early movements of the enemy in pursuit may be at once checked.

A reconnaissance report should therefore deal in logical sequence, with all the points that have just been referred to, and then give a general opinion, taking into consideration all the attendant circumstances of the situation. The strategical conditions of the case may, it is true, be fixed by higher authority, as a constant quantity in the problem that has to be solved, still it should be very carefully pointed out how far a flank which is thereby the one threatened, is more or less exposed or secured by conditions of a tactical character. In some cases a proposal or scheme for the occupation of the position, may be asked for or required. In such a case, a sketch showing how the position would be occupied by troops, is highly desirable; on it should be marked, as far as is possible, by a thick dotted line, the ap-

proximate range of vision or sight from the position. Tracts of ground lying within range of artillery, which are *dead*, or cannot be seen into, should be shown by shading.

β. Positions for Advanced Guards.

These often coincide with the positions chosen for the outposts (a matter that will be dealt with further on), but they differ from the latter in this respect, viz., that they always must be considered as positions for battle with a distinct offensive object. To push forward an advanced guard far ahead of the main position chosen for fighting in, with the object of engaging the enemy, must, as a rule, be considered a faulty measure. According to past experience in war, it is a mistake to suppose that the plans of the enemy are more clearly developed, or that his main strength is partially exhausted, by preliminary encounters of this description. The real result indeed of such a proceeding has been generally found to be that the advanced guard gets hopelessly engaged with superior forces of the enemy, and driven back with serious losses on the main position. If it receives no support from the main position, it generally reaches the latter, when forced back, in a state which renders its further employment in action on the same day very doubtful, and has a very bad moral effect on the troops holding the main position, whereas the enemy gains for the time, both a moral and tactical advantage.

If the advanced guard is to be reinforced and supported from the main position, to avoid the results just described, the forces intended to hold the latter are weakened, and the battle is in the end mainly fought out in quite a different position and on different ground than was originally contemplated. Consequently an advanced guard pushed forward in front of a main position, should as a rule, only serve for purposes of observing the enemy, and guarding against surprise; the *rôle* that it would play would consequently be guided in the main, by the rules and principles which apply to outposts.

But to push forward an advanced guard which is to engage the enemy in a given position, is a proceeding which is perfectly justifiable when an advance with the main body either into or

beyond the position in question, is contemplated or determined on. The advanced guard if attacked, is in such a case reinforced to the extent required, without in any way abandoning the line of action it was originally intended to pursue, but rather in accordance with it. The latter can only in certain cases, be realised by the engagement of an advance guard pushed forward with an object such as has just been alluded to—for instance, when debouching from mountain passes or crossing a river—the action brought about by the advanced guard in such cases, being intended to gain time and space for the arrival and deployment of the main body. If in an engagement of this sort, the desired results cannot be attained by continuing to act on the offensive in the face of superior forces of the enemy, the advanced guard must be content to remain for a time, at any rate, on the defensive, and consequently a good defensive position must be sought for.

The conditions to be fulfilled by the latter are much the same as those that have been alluded to in the case of a position for battle, especially as regards the effects of fire. The distance of the main body, and the time that must elapse before it can arrive to the support of the advanced guard, are questions upon which mainly depend the front that it may occupy and the matter of securing the flanks, together with the possibility of gradually extending the front so occupied.

Should a retreat become necessary, unfortunate results can scarcely be avoided, as, taking the case of an advanced guard pushed over a river to cover the passage of the main body, it must unavoidably have the river running close in rear, and must accept battle, against all rule, *with its back* to a defile.

These considerations show that to push forward an advanced guard into a position where it is to fight an action, is a step that should always, when possible, be avoided, and that in all cases, the main body should be sufficiently near to be able to afford an advanced guard effectual and timely support, in case it is attacked by the enemy in superior force.

γ. Positions for Rear Guards.

A position for a rear guard should be of great defensive strength and have its flanks firmly secured; it should be such as to enable artillery to be used with effect at a long range, and should require but a comparatively small force of infantry to hold it. A frontal attack on it should offer serious obstacles to the assailant, and to *outflank* or overlap the position during the engagement should be impracticable, so that any *turning* movement must entail a wide detour in order to be of any good. The object to gain time for the orderly and unmolested retreat of the main body, is thus best secured. Opportunity to take the offensive is in this case not a condition sought for, consequently a formidable obstacle in front of the position is now very desirable.

A reconnaissance might often be required to be made of several positions for a rear guard in a line of retreat, one behind the other. These must then be at a proper distance apart, depending on the strength of the rear guard. It is sufficient in this case to point out that a small detachment takes less time to abandon one position and move into another, than a large force, but that at the same time, a large force can better maintain itself when actually retiring from one position to another, than a small one, though the movement itself may take longer time. As we are now only supposing the case of a rear guard provided with artillery, we may express the minimum distance that should intervene between any two such positions, by the extreme range of the field gun, or 4 kilometres ($2\frac{1}{2}$ miles).

The enemy would in the long run abstain from invariably attempting frontal, or even outflanking attacks which, if the positions be skilfully chosen, must always be accompanied by very severe losses. He would rather try to turn his superior strength to account by turning the flank of the positions, and thus manœuvre his adversary out of them. It is evident that, in the choice of the flank to be made most secure, strategical considerations must first of all be considered. In some cases it may happen that these may be put in the background, so far as it may seem desirable to give additional weight to considerations of a

tactical nature. It would then be advisable to select, as far as possible, a series of positions, so that the flank most easily turned or overlapped, is not always the same. If it were so, the turning movement of the enemy carried out until it was brought to bear on one position, would be favourably situated for repeating the manœuvre on the next position in rear. And under such circumstances a rear guard, though it only abandoned one position to take up another, would practically only gain an interval of time corresponding to the taking up of the first.

In other respects the conditions to be fulfilled by a position for a rear guard are much of the same character as those necessary for a position for battle. But as in the former case it is only a question of gaining time, and not one of fighting out a general action in the light of a decisive battle, the position in question may be more extended in proportion to the force that is to hold it.

It is desirable, if opportunity be given, of making a short and sudden cavalry attack, immediately after quitting the position, on any advanced parties of the enemy that might push forward somewhat rashly in pursuit. An offensive movement of this kind checks the energy of the pursuers, and makes them act more cautiously in future. The infantry are at the same time enabled to quietly continue the retreat, either on roads screened from the enemy or behind dips in the ground.

3. POSITIONS FOR OUTPOSTS.

Positions for outposts are occupied by the latter with a view to *observe the enemy* and *secure a force against surprise*. In the first case a distant view of the surrounding country is desirable, and in the latter, every impediment in the way of the enemy's approach. It may be considered a very fortunate circumstance if both conditions are found to be fulfilled by the same piece of ground. But the necessity for insisting on both being present is in fact rare, as the matter of observing the enemy is generally ensured by parties of cavalry pushed as far as possible to the front, and the necessary precautions against surprise are then sufficiently provided for by occupying with infantry or artillery, points well suited for arresting the approach of the enemy.

Security against surprise depends mainly on observing the enemy at a very considerable distance in advance, for, it should be remembered, outposts are not, as a rule, intended to *actually arrest* the attack of the enemy, but to secure the forces they cover against being attacked *by surprise*. It is only in the case of a retreat that a rear guard with its outposts is intended to actually prevent any collision between the main body and the advancing enemy. The position occupied by the outposts must in such a case be closely connected with the position held by the rear guard.

As a rule the officer who has to reconnoitre the position for the outposts, would be given the point or line that the main body is intended to occupy. The strength of the latter, and the rayon it is to occupy, whether bivouacked or in cantonments, fix the distance, the front, and the nature of the line of outposts, *i.e.*, the line to be occupied by fixed posts of observation with outlying sentries beyond. This line may be less extended and brought nearer the main body, according as the ground separating the outposts from the main body, is better adapted to offering resistance with the object of gaining time, and in proportion to the distance beyond the chain of outposts, at which cavalry are satisfactorily keeping an independent and uninterrupted watch on the enemy's movements. Consequently points where several roads meet, defiles of any description, and towns or large villages, should be closely watched, as these are places where the enemy would be likely to be found in force, or by which he would probably attempt to push forward. If cavalry are pushed far to the front, the line of outposts would consist of a chain of small detachments acting as supports to the cavalry, and for this purpose would be posted on the main roads of the country, keeping up communication with each other, and independently protecting themselves against surprise by flying parties of the enemy, by outlying pickets and sentries of their own posted close at hand. The main body or reserve (*Gros*) of the outposts would act as supports to these detachments; but circumstances must decide whether such support is to be given by these being reinforced in the line of outposts from the *Gros*, or whether they are to fall back on the latter.

All these questions must be considered with reference to the position of the enemy, our own position, and the topography of the country. The reconnaissance report should comprise a proposal for the general line to be taken up by the posts of observation (*pickets*), that to be occupied by the detachments acting as supports to these and to the cavalry beyond (*supports*), the positions to be occupied by the *Gros* of the outposts (*reserves*), and finally an opinion as to whether the whole outpost system should be placed under the orders of one or more outpost commandants. The latter question is one that mainly depends on the extent or length of the line of outposts, or whether it be divided into sections by natural obstacles of any kind. If it appears from either of these reasons that a single direction be impracticable, it should be abandoned, and a divided command substituted.

2. RECONNAISSANCE OF THE ENEMY, OR OF THE GROUND OCCUPIED BY THE ENEMY.

The officer of the General Staff should, in this case, not shirk the danger of meeting with the enemy, but he must not unnecessarily seek it; he must remember that he is merely sent out to see. A wound or the loss of his horse may cause him to be taken prisoner, and the reconnaissance would thus result in a complete failure. The fact, moreover, of personally taking part in any fighting is sufficient to distract his attention and impair his powers of calm observation. Under certain circumstances, a short encounter, such as would be caused by breaking through the enemy's outposts, is the only way of gaining the desired information. In such a case, it is best to make up one's mind and ride rapidly forward to where the necessary observations can be made; if this be successfully done, no further delay on the ground should be made, but trusting to the speed of one's horse, the protection of one's own troops should be regained as rapidly as possible. It is well then for an officer when going on an expedition of this kind, to select his best and safest horse; any orderlies accompanying should also be exceptionally well mounted.

As there is always more or less danger of being killed or captured on such occasions, it is advisable never to carry any notes or documents that might, if they fell into the hands of the enemy, afford him such information on our own troops, plans, movements, etc., as would be undesirable. A map and a note-book are things that cannot be well dispensed with, but care should be taken that nothing be written or marked on either, that might in any way serve as a clue or hint as regards the object of the reconnaissance. Thus an officer who has been in the habit of daily marking on his map the positions of his own forces, or of carrying in his sabretache extracts from orders on operations, should be careful to leave both behind, and take articles of a less compromising nature with him.

In a reconnaissance of the enemy's position, it is generally a question of ascertaining the best way and means of forcing or dislodging him from it, and reporting accordingly. In the case of a skilfully chosen position, a frontal attack will rarely lead to the desired results; consequently when setting out on the reconnaissance, it is well to bear this in mind from the very first, and direct one's attention without delay, to that flank of the position which the strategical situation makes it desirable to attack. If, according to the instructions received, a portion only of the enemy's position is to be reconnoitred, the line of action that it is intended the troops which are to act against the adjoining portions of the enemy's position, are to pursue must be carefully borne in mind. This is all the more necessary if we remember that one of the first things to be considered, is the covered approach and skilful deployment of the artillery that is to open the engagement. When only a portion of a position is being reconnoitred in connection with other officers, the troops moving to the right and left naturally, though inconveniently, often limit and restrict much freedom of action in the above respects. To avoid crossings and collision, it is well on such occasions to come to an understanding with the officers reconnoitring the adjacent portions of the enemy's position.

The results of a reconnaissance such as has been just described, carried out *before* the commencement of an action, are as a rule, meagre and wanting, as if we except the ground

lying in front, the position itself can only be viewed from one side, and very little at all seen of the hostile forces holding it; consequently *whilst the action is going on*, every effort should be made by keeping a sharp look-out, to acquire the information that is still wanting, and turn it to account as the action proceeds. In the case of a battle on a large scale, officers should be specially detailed to look for, and obtain information of this kind.

k. FORTRESSES HELD BY THE ENEMY.

The reconnaissance by the General Staff officer is confined in this case, in the main, to the question of cutting off and investing the place. If any idea be entertained of surprising or attacking the place *de vive force*, it is necessary to have the co-operation of Engineer officers. Officers of this arm of the service, as well indeed as Artillery officers, are, whenever an attack *en règle* is to be undertaken, specially detailed to make the necessary reconnaissance. If a bombardment be determined on, matters are of course almost entirely settled from an artillery point of view.

In blockading and investing a fortress, the first question to be considered is the selection of the line in which the sorties of the garrison in force, made with a view to break through the line of investment, are to be met and resisted. Once determined on, arrangements must be immediately made for fortifying and strengthening it, and the works must be undertaken without delay. Bearing in mind then that the garrison being centrally situated, can suddenly bring a superior force to bear on any point in the circle of investment, the questions of posting reserves, and of establishing good and safe communications between the different corps holding the foremost positions in the line of investment, must be at once dealt with. The situation is especially a difficult one when, as is often the case, the fortress is situated on a large river, thus dividing the investing force, from the very first, into two distinct portions. Positions for establishing bridges must then be sought for, and when decided on, strongly fortified.

The position to be occupied by the outposts is in this case a very important question. With a view to entirely cutting off

the place from the exterior, they must be very carefully posted, and on some systematic plan; they must moreover, by taking advantage of natural and artificial defences, be in a position to hold their own against small sallies of the garrison, or when attacked by the latter in force, to at any rate offer such resistance as would enable the troops they cover in rear to get ready for action.

In active warfare in the open field, this condition is facilitated by placing the outposts at a considerable distance both from the enemy and the forces they cover. But in an investment or siege, this is impossible from the fact that any increase in the distances referred to, at once entails a serious lengthening in the total line of investment, and the latter would very soon become too extensive for the investing force to hold.

If the latter is not sufficiently strong or numerous, it must content itself with watching the fortress—a proceeding which may not absolutely cut it off from the exterior, but may still effectually prevent the garrison from taking any active part in the campaign, provided, of course, the observing force is sufficiently strong in comparison to the garrison. Only portions of the latter, it should be remembered, would be available for operations beyond the immediate neighbourhood of the fortress. The probable direction, according to the state of affairs in general, in which any such operations would be likely to be attempted, would then mainly decide the choice of position for the main body or bodies of the corps of observation. In selecting such positions it is very desirable that they should be situated so as to take in flank any offensive movement of the garrison, bearing in mind how concerned any detached parties of the latter would be about their line of retreat. The actual work of observation would in the case in point, be performed by cavalry keeping at a considerably further distance from the works of the fortress, under the supposition that the observing force is of course much stronger in this arm than the garrison.

A reconnaissance under the above headings, would consequently have to be made of the ground in the neighbourhood of the fortress, together with any positions which the enemy might occupy.

Information obtained one way or another on the strength and composition of the garrison of the place, its artillery and engineer means of defence and equipment, and the stores of various kinds it might contain, weighed and compared with the strength of the force outside, would mainly decide whether the place should be at first merely observed, or at once closely invested.

If it be clearly the intention to shortly undertake siege operations *en règle*, or proceed to a bombardment, the reconnaissance of the place, undertaken in this case with the co-operation of Artillery and Engineer officers, should be made with a view to invest the place in such a way that the siege operations contemplated may be advantageously commenced and carried on. The General Staff officer must on an occasion like this, be careful not to forget that, neither a siege *en règle*, nor a bombardment, can dispense with infantry as its main support. How circumstances arising from the choice of the front to be attacked, etc., are likely to affect this arm, is then a question for him to carefully examine.

If a surprise or an attack *de vive force* be contemplated, the first question to be considered is whether, owing to the carelessness of the garrison or the weakness of the works, there seems to be a fair chance of success. Next the roads, etc., by which the place may be approached, must be most carefully reconnoitred, so that each corps, etc., may be clearly and distinctly assigned the *rôle* it would have to play in the undertaking. Any uncertainty or want of clearness in the orders issued, arising from the roads, ground, etc., having been imperfectly reconnoitred, is sure to entail failure.

The General Staff officer and Engineer officer are mutually responsible that no unforeseen obstacle or impediment, to the existence of which they have omitted to sufficiently draw attention in time, causes the attempt to fail. If their reconnaissance gives results in this respect which are not to be entirely depended on, it is their duty not to recommend the attempt.

CHAPTER IX.

SPECIAL DUTIES OF OFFICERS OF THE GENERAL STAFF
IN THE FIELD DURING OPERATIONS.

THE *role* or duty which the General Staff officer has personally to perform, has hitherto, in the course of this work, only been made the subject of occasional reference or treatment. Former Chapters have indeed been written more with a view to explain and point out such points as a candidate or young officer of the General Staff, should learn and know. But it is quite possible to learn a great deal, and yet when attempting to turn such knowledge to practical account, meet with difficulties which experience and practice can alone *entirely* remove. War is in this respect, as indeed in most things which concern the soldier, the best of all schools. It is, however, an exceptional state of affairs, and exercises in peace time give but little opportunity of practically learning how to turn theoretical knowledge to the best account. The final Chapter of this work is consequently devoted to drawing attention to certain points in connection with which, as the results of experience collected from various sources, in addition to that personally gained by the author himself, have shown, the General Staff Officer has in war either to personally and independently deal with matters on his own responsibility, or act most usefully in the capacity of an assistant to his General.

a. THE INTELLIGENCE DEPARTMENT.

Faulty plans are generally the result in war of insufficient knowledge of the state of affairs on the enemy's side, more particularly as regards his numerical strength, his *morale*, his positions, and his plans. The opponent who is better informed than his adversary, is at once in a position possessing immense advantages, as his plans are based on better known and safer *data*. He

in fact *knows*, where his adversary has to *guess*. The incalculable advantage of a good system of obtaining intelligence, is thus at once apparent. The foundation for such a system rests in the first instance, on an *intimate* knowledge and acquaintance with the organisation, customs, and habits of the enemy's army. Many and various ways of gaining such information are, it is unnecessary to add, indispensable.

It is one of the duties of the Headquarter Office of the General Staff (in Germany called the "Great General Staff") to procure in time of peace every kind of desirable information on the organisation, institutions, etc., of foreign armies, but more especially of those which are likely, either as allies or enemies, to most directly affect Germany and German interests. The ways and means of procuring the necessary information are of course of a very varied character.

The reports of military *attachés* permanently belonging to our embassies, as well as of officers sent abroad on special journeys or to attend the annual manoeuvres of foreign armies, furnish the most reliable *data* to start from, and further draw attention to publications on military matters in periodicals, in the daily press, or in the military literature of the country in question. A careful study of the latter and of the service rules, regulations, and administrative arrangements, and above all things, a close examination of the Military Budget annually prepared and laid before the representative house of assembly of the country, are again highly useful in acquiring further knowledge on foreign armies and military institutions. The first condition, however, of accurately appreciating such information is, *the most thorough* and accurate knowledge of one's army and military institutions, for without this, it is impossible to draw comparisons or weigh and estimate matters with sound professional judgment.

It must not be forgotten that whilst preparations are being made for a campaign, as well as during the various periods of the war, the value of the information possessed on certain subjects connected with the enemy's forces, varies very considerably. It should consequently always be our aim to acquire the kind of information which at the time is most likely to enable us to arrive at important conclusions.

On the breaking out of war, this is especially the case from the commencement and throughout the period of mobilisation. By understanding the enemy's plans for the latter, and rightly appreciating the value of his railway system as adapted for such purposes, reliable *data* are at once afforded by which some idea may be formed of the time that must elapse before he will be assembled on the frontier in readiness to strike a blow. It is a wise measure never to under-estimate the powers of the enemy under this heading, as the corresponding preparations on our side would be most easily affected by any advantage he might gain. Surprises—the result of greater rapidity in mobilisation on the enemy's side than was contemplated—might very seriously upset all our plans and preparations. If on the contrary, the enemy were found to be more behindhand than we allowed for, we should be in a position to reap unlooked-for advantages.

To come to any correct conclusion as to where the enemy is most likely to assemble the mass of his forces, we must first of all deal with the question from a strategical point of view, giving him credit for adopting such measures as are most advantageous to him and the reverse to us. Next, any information we may obtain on points where supplies or stores are being collected on the enemy's territory, may, coupled with his railway system, be very significant tokens. To obtain trustworthy intelligence on such matters, the employment of special agents (spies) becomes necessary. A careful study of the newspapers often gives excellent information both as regards the points of assembly as well as the *Ordre de Bataille* of the enemy's forces. To keep the latter carefully corrected up to date, and constantly followed throughout the whole period of the campaign, is one of the surest ways of rightly appreciating the value of any information that may from time to time be received. During the period of the strategical assembly of the forces on either side at the outset of the campaign (*Aufmarsch*), an active spy system may be very useful in acquiring information in detail on the position of the enemy's forces, their state of efficiency as regards effectives, equipment, armament, supplies, spirit or feeling, etc., and help to complete any knowledge that may be wanting on the enemy's *Ordre de Bataille*; a closer concentration of the enemy's forces or

the bivouacking of large bodies of troops would at once indicate an intention of very shortly commencing operations. During this period of the campaign, work of this kind is best performed by well paid persons who, under ordinary circumstances, are by the nature of their calling, constantly in the habit of crossing the frontier, know the country well, can be implicitly trusted, and have good friends on the enemy's side.

Whilst active operations are actually going on, the rôle of the professional spy is a very small one. The information spies are able to obtain, so far as the strength and movements of the enemy's forces immediately opposite are concerned, comes, as a rule, too late to be of any use. In one's own country patriotically disposed persons who are ready to risk their lives, and who know every road and path in the country, might certainly be able to gain a certain amount of information, but even in this case, and certainly in the enemy's country, cavalry must be mainly depended on as a means of acquiring information. Besides the above, the examination of prisoners, deserters, and if the national character is inclined to loquacity, of the inhabitants, may often lead to very useful results.

In addition to and independently of the above system of procuring intelligence, that can be immediately turned to account, the Central Office of the Great General Staff continues steadily working during the whole period of hostilities. Paid agents, carefully selected beforehand in time of peace and thoroughly tested as regards their trustworthiness, continue in the enemy's country, watch everything that goes on, especially from the chief centres of military life, and transmit by way of neutral territory, written and telegraphic despatches, using a form of language unattractive to the uninitiated.

But constant and close attention should not be solely confined to the enemy and the enemy's country. Countries and armies that are for the time being, neutral, should be equally closely watched. Diplomacy, it should be remembered, rarely slumbers in warlike times, and in neutral states which see their interests affected by the course which the war is taking, may often bring about very sudden and unexpected measures.

The Intelligence Department is in the main in the hands of the General Staff.

The Central Office of the latter must always chiefly devote its energies under this heading in a direction depending on the state of affairs at the time, and it only remains to be pointed out that it must be provided with the necessary funds to retain certain persons in its service in peace time. If it succeeds in gaining the services of persons who put themselves at its disposal, not in return for money, but from motives of a higher nature, and ensuring a greater degree of reliance, such a circumstance must only be considered one of exceptional advantage. It is, however, the duty of all such agents, however obtained, to carry on communications, correspondence, etc., with the greatest possible caution.

In the case of General Staff officers belonging to the troops in the field, there is the greatest difficulty, when carrying on the duties of the Intelligence Department, in selecting the right kind of individual from those that offer themselves as spies. By far the greater proportion of these are only bent on *gaining money* without really *deserving* it by services almost invariably accompanied with the greatest danger to life. The comparative security with which a man may play the rôle of double spy, *i.e.*, a spy in the pay of *both* sides, necessitates the greatest precautions being adopted in dealing with persons employed as spies. It should consequently be observed, as a rule, that a spy should be met and spoken to in the line of outposts, or at any rate, under circumstances preventing his acquiring any knowledge of military matters on this side, which he might at once convey to the enemy. To ensure reports being trustworthy, the same mission may be simultaneously confided to several independent spies; care, however, must be taken that such persons know nothing whatever of each other, otherwise matters might be easily arranged between them, and a combination would then have to be faced. Information may be required on what is unknown, and the spy at the same time directed to obtain intelligence on what is known; the truth or accuracy of his statements in the latter case then enables the reliance that can be placed on him as a spy, to be rightly gauged. It is also very desirable when

employing spies, to entrust them at the same time with missions of an unessential as well as essential character; if a spy be given a mission of the latter description only, he might at once act as a double spy by conveying to the enemy the subject of the mission he is entrusted with, and it might in many cases, give him sufficient *data* to come to some correct conclusion on the designs we entertain. Really efficient services should be highly rewarded.

The training of cavalry in intelligence duties is a subject practised at manœuvres in time of peace. But as such exercises necessarily exclude a great deal that would have to be done in war, such as capturing despatches, cutting off the enemy's post, removing telegraph books, etc., etc, special attention must be drawn to such matters before the outbreak of hostilities. Occasions, moreover, constantly occur during the course of active operations, when special expeditions are necessary to ascertain what is precisely of importance at the moment.

Even supposing, however, that the way in which the duties in question are carried out, amounts to perfection itself, there is always the greatest difficulty, owing to the enormous number of reports and communications received, and to the fact of their often being of a most contradictory nature, in extracting the pith or real truth from them. In addition to the greater or lesser degree of probability which, according to the military situation at the time, may be attached to the various reports, differing as they sometimes do, so widely from each other, there are also—the reputation or character of the officer who sends the report, the more or less proved reliance that can from experience be placed on any individual corps or regiment, and in many cases, a comparison with a report received a few days previously, but held to be incorrect, all to be considered. To be able to criticise and extract correct results in such cases is almost entirely a matter of experience, though it is an undeniable fact that certain men often at once show a decided natural aptitude for such work. Officers of this stamp should then be permanently entrusted with the detail of the Intelligence Department, and this at the same time ensures proper attention being uninterruptedly paid to all reports, etc., received giving information useful with a

view to the correction up to date, of the *Ordre de Bataille* of the enemy's forces.

There would be always at the Commander-in-chief's headquarters as well as at the different Army head-quarters, a specially selected officer of the General Staff for such purposes, whose occupation would be entirely devoted to the duty of sifting such information as he would obtain on his own account, or would be communicated to him through the medium of the different military commands under the orders of his General.

In the case of an Army Corps Command, the Chief of the General Staff must himself undertake the duties of the Intelligence Department, though he may secure the services of one of the officers under his orders, as an assistant in collecting and sifting the information he receives. In the case of the Division, such duties fall to the lot of the Divisional General Staff officer who, however, in this case, at once reports all such matters to his General.

With the duty of *sifting* intelligence, is immediately connected that of *forwarding* or reporting news to superior authority.

Everything that is *evidently* immaterial or undoubtedly incorrect must be excluded. The news that the enemy has not been met with at a certain point, and suchlike information, would not necessarily be always excluded as belonging to the former category of intelligence; for reports of this nature though negative in character, might often be of considerable importance to those in high command, though it is far better for the latter when requiring such information, to distinctly ask for it.

If to the report on the news that has been received in the course of the day, an opinion of the officer in charge has to be added, on the results gained as a whole, information considered less probable in character should not be excluded, but should be added with the grounds on which their value is doubted.

Finally, urgent and important news should not only be at once forwarded to the officer immediately superior, but to the higher, and if possible the highest military authorities as well, at the same time, whenever it appears that the information would thereby reach them quicker.

b. DEALINGS WITH THE ENEMY.

The operations of war lead from time to time—and in the end invariably—to results rendering it either desirable or necessary on the part, at any rate, of one of the belligerents, to desire a suspension or even a final cessation of hostilities. If it be a question of the *general* cessation of hostilities, political considerations go, as a rule, hand-in-hand with military negotiations, and the former being then of a diplomatic character, may affect the latter, even as regards the purely military part of the business. The *local* cessation of hostilities is a question that diplomacy has nothing to say to, and must be left entirely to soldiers.

Dealings of this description with the enemy are almost invariably carried on by officers of the General Staff. On such occasions it is a question of turning the actual existing situation—be it an advantageous or disadvantageous one—to the very best account. To do this effectually, every endeavour must be made to skilfully conceal our own weak points from the enemy, and at the same time turn the known weak points on his side to the best account. But though to be perfectly open and candid is somewhat out of place when dealing with an adversary, an officer must not be expected, on the other hand, to knowingly tell positive untruths even to an enemy. If the latter again shows on his own account that he is under false impressions on any particular point, there is no necessity to dispel his illusions on the real state of affairs, by statements which might possibly expose any weak points on our side. Still more out of place is any idea of generosity that might be felt when contemplating the misfortunes of another. Gratitude and mutual friendship are things that must never, on such occasions, be for a moment reckoned on.

The *military* result is rather what should be looked to to be fully and materially made the best of, in doing which, it may be becoming to pay every formal honour to a gallant enemy, provided the honours that belong to the victor according to the usages and custom of war, be not thereby detracted from; otherwise offence would be given to feelings of our own army. The *material* advantages gained by a victory in the field can never be con-

sidered as sufficient. This idea is at once forced on us if we consider the sacrifices our army has been called upon to make. To call upon the latter to again make similar sacrifices owing to false ideas of humanity or mistaken notions of chivalry, would show a want of clearness of judgment on our side, which must never for a moment be lost sight of in all dealings and transactions with the enemy.

The negotiations that have taken place generally end in a written agreement being drawn up. This should admit of no doubt as regards the range of the concessions obtained, or the engagements entered into. For the honourable fulfilment of the former, every possible measure of security must be taken, which in a great many cases, merely consists in having the means at hand of compelling their fulfilment by force, and making any compliance on our side dependent on the previous fulfilment on the enemy's side, of the terms that have been agreed upon.

In carrying on negotiations with the enemy, many circumstances have to be settled on suppositions of the most varied description; it is consequently impossible to lay down hard-and-fast rules, according to which a convention with the enemy may be invariably drawn up. It only appears practicable in the case of drawing up the terms of an armistice or a capitulation, to draw attention to certain points deserving notice.

Negotiations for an *armistice* have for their object the temporary separation of the hostile forces, but with an understanding that unless peace is concluded in the meanwhile, hostilities are to be again resumed. The first question to be decided is then to determine a line of demarcation, or neutral zone which is not to be crossed, or as the case may be, entered on, by either party. The breadth of such a neutral zone may in the case of active operations in the field, be some one or two days' marches in breadth; but in the case of a blockaded or besieged fortress, it should be drawn within the narrowest limits. In the case of a line of demarcation, or a line fixing the limit of a neutral zone, communications such as a line of railway, a high road, etc., should never be chosen to serve as such, but rather a line which in itself constitutes a natural obstacle and can only

be crossed at fixed points. Outpost duties are thereby much simplified, and these, it may be remarked, must never for a moment be relaxed in the foremost line, during the whole armistice. Experience has shown that in spite of conventions that have been agreed to, attacks, either the result of indiscipline or misunderstanding, or treacherously planned, must always be provided for; these would be sure to entail very severe losses on the side that allowed itself to be carelessly surprised.

Negotiations for an armistice must also fix the time the latter is to last, or the notice that is to be given before it can be broken off. In calculating this time, the possibility or facilities for re-establishing the army, and the quality of the quarters it will occupy during the armistice, together with the positions which it is intended to take up on its coming to an end, are the main points deserving consideration (*see* page 199). Whether besieged or invested fortresses are to be allowed to revictual for a period corresponding to the length of the armistice, is a question that must be specially decided. At any rate, it is advisable never to agree to conditions, the fulfilment of which cannot be easily watched and controlled. A convention for an armistice should therefore be given the simplest possible form.

Negotiations for a *capitulation* start from the assumption that one side can offer no further resistance. Whether this impossibility actually exists, is a question to be solely decided by the party that is about to capitulate. Only in very rare cases, excepting of course when military considerations have to give way to political exigencies, can a capitulation be justified when there is still any fighting strength left. The question would then arise whether it would appear to be in the interest of the opposite side to meet any proposal for a capitulation considered early from a military point of view, by granting better conditions. Otherwise the surrender of the enemy's forces as prisoners of war, and the delivery of all arms and military *matériel* must always be insisted on. The conditions of the surrender must be carefully drawn up as regards time and place, and their punctual fulfilment ensured by the presence of a sufficient force. In the case of the capitulation of a fortress, the outlying and detached works must first be taken possession

of, and next the gates of the main *enciente*. After the garrison has marched out, been disarmed, and surrendered as prisoners of war, the powder magazines, etc., should be taken over, and then a new garrison marched in.

An officer of the General Staff sent to negotiate with the enemy, should be fully instructed by the General highest in command on the spot, as to the conditions he must *at least* insist on, and the concessions he may *at the most* make. To obtain visibly more advantageous conditions than were contemplated, is of course, perfectly admissible, but less advantageous terms must never be agreed to without first obtaining the necessary authority. It must always depend on the general military situation at the moment, whether negotiations should in such a case be simply broken off on the spot, or a proposal made to prolong them to await further instructions. The latter is invariably the course to be pursued when to gain time is of itself an advantage.

A convention drawn up by an officer of the General Staff is, as a rule, only complete when approved of by the General in command. But it is as annoying to the latter as to the General Staff officer himself, if such an approval cannot be given. This makes it all the more necessary for the General Staff officer to be as thoroughly informed as possible on all the circumstances of the case, and in doubtful cases he should ask for further instructions; these might be communicated to him through an officer accompanying him to the spot.

By the usages of civilised warfare, officers engaged in negotiations with the enemy, or bearing a flag of truce (*parlementaires*), are guaranteed security to their persons within the enemy's lines. If facts show that this right is not always observed, inasmuch as officers bearing a flag of truce and accompanied with the conventional signals (a trumpeter sounding and a white flag), have been occasionally fired on, the fault may generally be traced to unruliness on the part of soldiers, brought about by intense national animosity, or to ignorance either of officers or men on the subject.

The security which, however, may be said, as a general rule, to be guaranteed to an officer bearing a flag of truce, renders it a matter of duty on his part to carefully keep within the

bounds of the mission on which he is engaged (which should always be considered as solely directed to the General Commanding-in-chief the forces of the enemy on the spot), and avoid any misuse of the immunity to danger thus enjoyed among the enemy's troops. Otherwise he would, by his own act, at once put himself beyond the protection afforded him by the usages of civilised nations in war, and must expect to be ruthlessly treated as an enemy. To prevent an officer bearing a flag of truce from unavoidably observing the position, composition, etc., of the forces he might meet on his way, an enemy has a right to insist on his being blindfolded.

There is no necessity whatever for unwillingly receiving a flag of truce. For instance, the commandant of a besieged fortress, determined to hold out to the last, would act wisely in refusing to receive all flags of truce, or at the most in confining all correspondence with the enemy to written communications transmitted through the outposts. Similarly, during active operations in the field, all flags of truce should be stopped at the outposts and detained until further orders. Circumstances must, on such occasions, decide whether they are to be simply turned back, whether negotiations are to be entered into with them in the line of outposts, or whether they are to be conducted with the necessary precautions, to the head-quarters of the Division, Army Corps, etc.

An officer of the enemy's forces, bearing a flag of truce, who directly addresses troops and summons them to surrender, etc., instead of addressing the officer in command, should be instantly shot.

C. ON THE MARCH.

It is one of the first duties of a General Staff officer during a march, to keep himself fully informed of the movements of all the different bodies of troops set in motion by the same "dispositions," that may in any way whatever affect or concern the force he belongs to. If the "dispositions" issued by higher authority leave any matter open to doubt in this respect, steps must at once be taken to clear up any uncertainty that might exist. Measures must also be taken to ensure that communication between the various columns, etc., is uninterruptedly

maintained, so that the connection between the various bodies of troops belonging to his command, as laid down in the orders for the march, may constantly exist. Any irregularity in the rate of progress or advance, not answering the object in view, of any particular column or columns, should be checked by ordering a temporary halt. The General Staff officer should be with his General on the line of march, provided the latter does not assign him any special duties requiring his presence elsewhere. The following may be taken as the nature of the special duties in question that would be required of him, and it is advisable that they should be carried out, either by or through a General Staff officer.

1. Riding to the head of the column and beyond it again to the head of the advanced guard, with a view to obtain information on the enemy and the country. As regards the latter point the usual questions would be—selection of positions where outposts would be established, lines of advance to the attack, sites for bivouacking, halting places for rest (avoiding “*rendezvous*” positions of whole Divisions and Brigades, and long rests *on the road*), cantonments, cantonments combined with the bivouack (*Ortschaftslager*), etc., etc. If there be several General Staff officers belonging to the force in question, it is often advisable to assign one, accompanied by some mounted orderlies, during the entire march, to the advanced, or, as the case may be, rear guard, with a view to any observations he might have to communicate on the above headings, being more rapidly communicated.

2. Riding down the entire column from end to end, to be satisfied whether the whole is sufficiently closed up. Small deviations from the intervals that should exist between battalions, batteries, etc., are of no importance. A constant lengthening, on the other hand, of these distances or of the ground covered in column of route, by the various battalions, etc.—at once indicated by each column being insufficiently closed up—shows, either a want of discipline on the march (*Marsch-disciplin*), a too rapid rate of marching of the leading troops, or signs of exhaustion. The latter soon causes many infantry soldiers to fall out and be left behind. The

General Staff officer riding rapidly back to his General, alongside the column, would report all such matters that he had seen for himself.

3. Personally examining the state of affairs with a neighbouring column of troops, as soon as there would appear to be any probability—such as, perhaps, would arise in the case of a coming engagement—of the column to which he belongs, being required to turn aside from its original line of march and be directed on some other point. Similarly he would have to see for himself how matters stand with a neighbouring column when circumstances are such as render the co-operation of the column in question desirable in a given direction, in the interests of the column to which he belongs. In the case of a Division having only one officer of the General Staff, some other officer of the Staff would usually be sent on such an errand.

4. Riding ahead of the retiring column, in a retreat, to any defile that has to be passed, to ascertain for certain whether such defile can be passed without a check by the retiring troops. If, for any reason, a halt before passing the defile, appears desirable or necessary, and the enemy is following close at hand, no time must be lost in looking for and selecting a position for a rear guard to hold.

d. IN ACTION.

Although an officer of the General Staff does not take any share as a leader of men, in an engagement, he can nevertheless make himself exceedingly useful during one. His *rôle* is chiefly one of assisting and supporting his General, especially in such matters as do not directly concern the actual command of troops in action. He should never strive to exert any influence in such matters. In the first place it is really very much better if the General is a man who does not require to be supported by the *advice* of his General Staff officer. Consequently the latter should never attempt to proffer such advice unless asked for, and this is all the more desirable, as, under certain circumstances, advice, not distinctly asked for, coming from a junior to a senior, is very apt to offend the latter; in a case like this it is better to withhold, for the time being, any proposal that may even appear

to be really to the purpose, and skillfully work towards getting it asked for. This may often be brought about by the General Staff officer again drawing the attention of his General, for the moment diverted from some really important matter, to the point, in some suitable way, such as, for instance, by way of being allowed to remind him. It is, indeed, often distinctly his duty to try and exert an influence on matters, in such a prudent fashion, and the fact of his being able to do this with tact and discretion will, if the General Staff officer be a man of known high reputation, be sufficient, of itself, in most cases, to induce a General to ask for and listen to the opinion of the first assistant on his Staff. This is the case in a much higher degree in the case of Army and Army Corps commands, where the high rank and tried experience of the Chief of the General Staff carry so much weight.

The General Staff officer belongs, in an engagement, to his General; he should never leave him without his distinct consent, and should return to him as rapidly as possible after being absent on any particular duty or errand. The following may be taken as the character of the duties which he would be generally called upon to perform when so detached :—

1. Reconnoitring the enemy and the ground that has to be crossed separating the hostile forces.

2. Examining and reporting on the fighting that is going on out of his General's sight, and on the position of his own force as well as that of the forces next to it.

3. Guiding the various columns of the Army Corps, etc., and reporting to the various commanding officers on the best roads and directions to be taken.

4. Conveying orders of an important nature, to be modified if necessary according as things are actually found on the spot, without losing the meaning in which they are issued by the General. The officer in command of troops to whom the orders are conveyed, should be *fully* informed of all the circumstances connected with the case. In his intercourse with the troops themselves, or with officers holding small commands, the General Staff officer should always observe the greatest caution in his manner and speech, and on no account, in any

way, contribute to spreading rumours or news of a depressing nature.

The following may also be mentioned as important :—

5. Collecting written reports, etc., received ; these should be all marked, showing the time they were received. In the case of large Staffs, *one* officer is generally specially detailed for this duty.

6. Drawing up, and despatching without delay, any reports that have to be addressed to superior authority, unless the latter sends an officer specially for the purpose. This ensures in the best possible manner, the superior authority in question being constantly and punctually supplied with information.

7. Paying attention to, and supplying the different wants of troops in or after an action, such as the establishment of dressing stations, the removal of the wounded, the renewal of ammunition in the fighting-line, the supply of provisions, etc. etc. ; such measures generally necessitating the different departments and branches connected with such services, being properly informed, and in many cases, urged on, as well as notice being at the same time given to the troops.

If the enemy *is to be attacked*, a rapid reconnaissance of the enemy's position and of the ground that has to be crossed (*Anmarschterrain*), is one of the first things to be done ; next there comes the matter of seeking for and selecting good positions for artillery, the question of making any detachments that may appear desirable, and explaining matters to officers holding minor commands detailed with any particular object ; for in most cases, the General would rarely have time to do more than merely assign the latter. The question of bringing forward at the right moment, troops temporarily held in reserve, must also be constantly borne in mind, as well as even certain columns and trains as the action progresses. Finally, there is the examination of wounded or unwounded prisoners taken in the course of the fight, on matters they are likely to be able to give information on.

When acting *on the defensive*, a sharp look-out must be kept for the enemy's advance, and especially for the deployment of force in a clearly indicated direction of attack ; and the flank which the enemy will in all probability attempt to turn, must

be very closely watched. With this is connected the question of taking proper countermeasures for defence—a matter essentially depending on a constant and intimate acquaintance with the disposition of one's own troops, of whom as many as possible, in addition to those regularly detailed as reserves, should, when on the defensive, be kept as much as possible available for any use in any direction. Troops, the fighting strength of which has been exhausted to the utmost, can thus be all the sooner relieved from the fighting line, and withdrawn to positions of greater security; the latter then become points on which stragglers may be assembled. The right moment for bringing forward and utilising the reserves, and above all things, the right opportunity for either a partial or general offensive movement, must always be watched for.

When *the action is over*, the General Staff officer has to see to everything connected with the further fighting condition of the troops, and consequently the first thing to be done is to quickly re-establish the *Ordre de Bataille*—always unavoidably more or less disturbed by any fighting. Order is thereby not only more generally infused into the state of things, but the operation of bringing forward and issuing supplies and ammunition, and enabling the regimental baggage to rejoin their respective corps, etc., is much facilitated; otherwise a movement of the different carriages in a to-and-fro sense is sure to arise, and this not only prevents the troops from receiving their supplies, etc., until a late hour, but by crowding and blocking up the roads for many hours together, interferes with other traffic, and prevents, for instance, the wounded being properly conveyed to the rear.

The *result of the engagement* of course, decides whether the next move is to be a pursuit or retreat.

The value of a *pursuit* is in theory an undisputed fact. But in reality it requires energy of no ordinary kind both of mind and character, to take up and carry on a vigorous pursuit. The victor is in most cases just as exhausted after an action, as the vanquished. The harder the fighting has been, the greater will be the satisfaction with which one side sees the other give way. Again, there is a natural hesitation to risk the prize that has

been won at such cost and trouble, by prematurely committing the only troops that still remain intact, to a pursuit with the chance of their suddenly coming upon fresh reserves of the enemy. A General is only in a position to see the state of his own troops, which of course leaves much to be desired, and does not for the time, fully realise the far worse condition the fighting has naturally left his opponents in. There is, besides, the natural tendency, coupled with a feeling of thankfulness, of paying immediate attention to the exhaustion of one's own troops which have in most cases already done far more than a hard day's work. All this is human and has its weak side.

The less then the officer of the General Staff has actually to do with the fighting, the more can he be expected to keep himself free from the depressing effects that even a victorious action leaves behind. He should think of adding to, rather than rejoicing over, the success that has been obtained. But to add to a victory, requires the enemy to be pursued with every available man and horse till utter exhaustion brings things to a standstill. What the pursuer leaves in rear, he afterwards recovers, but in the case of the pursued, it falls into the hands of the victor.

The General Staff officer must consequently see to those troops that are best fitted and most ready to take up the pursuit, and these would therefore, when practicable, be those in advance and capable of moving rapidly. The defeat of an enemy is immediately followed up on the field of battle by cavalry and the long-range fire of artillery. Pursuit beyond this must, as a rule, be left to cavalry provided with horse artillery. If the fighting only ceases as darkness comes on, infantry would have to lead the pursuit, as cavalry is too much exposed to serious accidents in the dark. But cavalry should closely follow the infantry to be well up and ready to act on their own account, on the first streak of dawn. The more cavalry is able to effect on the morning and day following the victory, the better. But for this arm to be successful when opposed by a rear guard of the enemy composed of *all* arms, it must be favoured by certain topographical advantages which cannot be always reckoned on. Infantry and field artillery must consequently closely follow to afford the cavalry support when difficult positions are met with. The

greatest dash and enterprise in the pursuit must, however, be accompanied with a certain amount of caution, especially with a view to prevent the leading troops being surprised or falling into ambuscades. This requires a numerous and efficient cavalry. If the enemy be superior in this arm, the pursuit is soon checked through our inferior means of reconnoitring and scouting, and consequent ignorance on the right direction to be followed.

An advanced guard composed, as the urgency of the case best permits, must be closely followed by columns of troops in their proper order, both to support, and when a suitable opportunity is offered, relieve it.

If it has been clearly ascertained in the course of the first day's pursuit, that the enemy is retiring in great disorder, night attacks are advisable as having a most demoralising effect. But to attempt such a course in the face of an enemy whose order is still intact, is all the more unjustifiable, as the ease with which such attacks are repelled, only tends to raise the enemy's self-confidence.

In addition to a *direct* pursuit, the advance of another column in a parallel direction would often have a most desirable effect, inasmuch as it would constantly threaten the enemy's rear guard in flank, and force it to hastily retire. And if by any chance, such a manœuvre could be hastened by using the railway, the enemy might be anticipated at important strategical points, and if not cut off and destroyed, at any rate pushed off his original line of retreat.

In every engagement the possibility of being worsted and having to *retire* must never be ignored. The direction of such a retrograde movement is a strategical question. How a retreat in such a direction may be ensured is a tactical one.

The most important point in considerations of this kind is the existence of a good rear guard position near at hand (*see* page 280), and a country behind this with numerous roads and communications, and points where the beaten forces may be conveniently assembled.

The steps that may be necessary with a view to reconnoitring the country, etc., before retiring, should *at the latest* be taken when there is the slightest appearance of the tide of war turn-

ing against us. One of the most necessary precautions is a careful reconnaissance of the roads to be followed, taking steps to have them clearly indicated to the retiring columns by night, as otherwise the most disastrous consequences are quite possible where roads cross or bifurcate; officers, or at any rate trustworthy and intelligent non-commissioned officers, should be posted, having written instructions on the direction or roads to be followed, and points of assembly to be made for by the different tactical units, corps, regiments, etc. The points of assembly should always, when possible, be so chosen that the troops would find themselves, when re-assembled, much in the same relative position as regards each other, as they were before the action; the connection of a force with its trains, columns, and regimental baggage, is thus much better preserved. These should at once and quickly be moved to the rear, so as to leave the roads clear for the movement of the retiring troops; only what is absolutely necessary for replenishing ammunition and issuing supplies, should be temporarily withheld, and for the time posted at suitable points, *i.e.*, such as would be covered by the nearest natural or topographical feature (*Terrainabschnitt*) affording protection.

The General Staff must lose no time in the matter of establishing, as soon as possible, proper order in the various columns; but to expect very much as regards the proper order of the troops in column for the first few hours, is in most cases impossible. We must consequently, under certain circumstances, be satisfied if we manage to get the different battalions, squadrons, and batteries into column of route regardless of their proper order, provided they are complete and orderly in themselves. The first consideration, and one to which others must be made subservient, is to get a certain start with our main forces, from the enemy. If we succeed in doing this, the *Ordre de Bataille* of the various units can all the sooner be re-established in the order of march.

Troops, the fighting strength of which is least impaired, and that are most reliable, should be chosen for the rear guard, and as circumstances require, reinforced by cavalry and artillery.

The General Staff must never relax its efforts in assigning to

the troops the best roads and lines of retreat, procuring them good supplies (a matter which may often decide the fate of an engagement), and finding them comfortable quarters.

A successful encounter will, however, better than all this, tend to raise the spirits and re-establish the shaken *morale* of troops that have been worsted; and to bring about such an issue, especially as regards seeking a favourable opportunity for suddenly falling on the heads of the pursuing columns, is a matter that the General Staff must never for a moment lose sight of.

Before bringing the final chapter of this work to a close, it would be well to point out that *every act* of the General Staff officer must be based on the *consent* of his General. He must not, however, always *wait* until he is called upon to act, but he should *ask for permission to act*, provided of course permission has not been given him once for all to act in such matters.

To a good, practical, and reliable officer of the General Staff, no obstacle would ever be likely to be offered, provided his attitude in the desire to be useful, is accompanied with tact and discretion. If he be wanting in this respect, or show a tendency to give his attention to details of no material importance, his labours simply amount to those of an active idleness. A man who is capable of no more than this, is one unfitted for the General Staff, as he is indeed for any other responsible post.

FINIS.

APPENDIX.

